Energy Research
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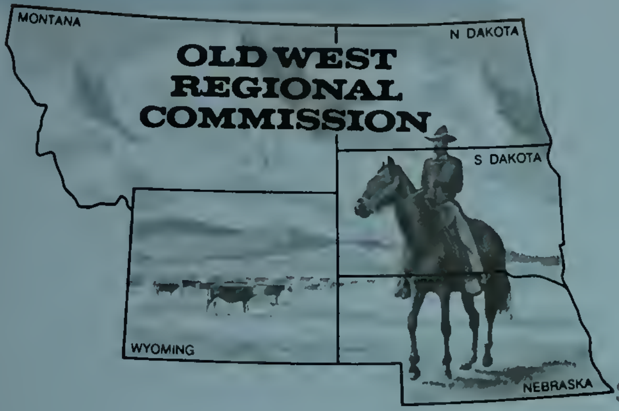
V.2, No.1



ENERGY RESEARCH INFORMATION SYSTEM

Projects Report

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Vol. 2, No. 1

January 1977

Project Nos. 00000540 through 00000716

A Program of:

The Old West Regional Commission
Billings, Montana

in cooperation with

Bureau of Land Management,

EMRIA Program

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PREPARED BY

Beth Givens and Cathy Boyd
Information Specialists
Old West Regional Commission
Hedden-Empire Building, Suite 228
Billings, Montana 59101

IN COOPERATION WITH

U.S. Bureau of Land Management
EMRIA Program

ENERGY RESEARCH INFORMATION SYSTEM
PROJECTS REPORT

Vol. 2, No. 1

Old West Regional Commission
and
USDI Bureau of Land Management, EMRIA

Billings, Montana
January 1977

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INTRODUCTION

The Energy Research Information System (ERIS) is a service administered by the Old West Regional Commission in response to the need for current information on research activities in the Region's rapidly growing and changing field of energy. Cooperating with the Commission on ERIS is the U.S. Bureau of Land Management, EMRIA program (Energy Minerals Rehabilitation Inventory and Analysis).

The purpose of ERIS is to compile and make available to the energy research users of the Region an up-to-date inventory of ongoing and recently completed energy-related research projects. By providing researchers with a means of communication with other researchers and allowing government and policy decision-makers access to Regional energy research, ERIS aims to improve communication channels among energy research users. Use of the system can be an aid in conducting research assessments, avoiding duplication, and pinpointing areas of additional research need.

ERIS Scope

The term "energy-related" covers a broad spectrum of activities and encompasses a large volume of research. Nonetheless, ERIS attempts to report energy-related research projects in as comprehensive a manner as possible. This includes reclamation, energy conversion, and land use research, socioeconomic impact and alternate energy resource studies, as well as programs related to energy development which do not necessarily involve research. The geographic focus of ERIS is upon research conducted in the Old West Region states - Montana, Nebraska, North Dakota, South Dakota and Wyoming.

The compilation of energy research projects in the ERIS reports has been accomplished by combining ERIS's own information-gathering efforts with those of other clearinghouses - most notably, the Oak Ridge National Laboratory's *Inventory of Current Energy Research and Development*, the Smithsonian Science Information Exchange, the Montana Energy Advisory Council, North Dakota Regional Environmental Assessment Program, and the other various energy agencies of the states of the Old West Region.

Use of the Energy Research Information System

ERIS Reports

ERIS information is stored in a computerized data base. As the data base grows, periodic reports are printed which list the latest contents of the data base. These reports comprise an ever-growing set of information on the Region's energy research activities. The first such report was issued in November, 1975.

Besides being updated continuously, the ERIS data base is revised to reflect changes in specific research projects. When *major* changes have taken place in already-reported research projects, this is noted in an amendments chapter to an ERIS report. Not every report will contain an amendments chapter.

Each ERIS report is broken down into broad subject areas, or chapters. For example, coal research is divided into eight chapters dealing with specific subjects such as Reclamation, Water Resources, and Social and Economic Studies. In addition, further access to the contents of the report is provided by four indexes - location, personal name, organization, and subject. The following are suggestions which may help you in the use of the indexes:

The Location Index utilizes the 2-letter abbreviations for states' names, i.e. MT for Montana, WY for Wyoming, and so forth.

The Personal Name Index contains the personal names of the investigators, supervisors, project monitors, and authors of publications for each project

The Organization Index contains uniform names of all organizations included in the main body of ERIS. Government agencies listed in the Organization Index are prefaced by the organization's affiliation, for example, *South Dakota* Office of Energy Policy, and *U.S.* Bureau of Land Management, EMRIA.

To conduct a manual search of ERIS using the Subject Index, it is recommended that a combination of general and specific terms be used. As an example, if the user is identifying all projects on the environmental effects of powerplants, he or she should refer to the specific term *electric powerplants*. Additional references can be found under the broader terms *energy conversion* and *environmental impact*.

Computer Search Service

The holdings of ERIS are computerized, allowing for flexibility in conducting special searches of the data file. Each of the data categories in the Reporting Form or any combination of categories can be used to formulate a special search. Subject searches can be conducted using assigned *keywords* and by scanning the abstract and title on a *free text* basis.

The computer search service is offered as a complement to the ERIS reports. If your inquiry concerning energy research cannot be answered by manual use of the reports, contact a member of the ERIS staff and request that a special search be conducted.

Please direct your inquiries to ERIS, Old West Regional Commission, 228 Hedden-Empire Bldg., Billings, Mt 59101.
406-657-6665 (commercial)
585-6665 (FTS)

* * * * * * * * * * *

The Old West Regional Commission is a Federal-State partnership designed to address regional economic problems and stimulate orderly economic growth in the states of Montana, Nebraska, North Dakota, South Dakota and Wyoming. Established in 1972 under the Public Works and Economic Development Act of 1965, it is one of seven such commissions in the United States.

The EMRIA program is administered by the U.S. Bureau of Land Management under the Department of the Interior. The purpose of EMRIA is to determine the reclamation potential for lands disturbed by removal of energy minerals and the post-mining effects on surface and groundwater within the basin of disturbance. Chemical and physical data are collected through EMRIA studies in cooperation with the Bureau of Reclamation, Geological Survey, Soil Conservation Service, state agencies, and from coordination with private companies.

REPORTING FORM
ENERGY RESEARCH INFORMATION SYSTEM
Old West Regional Commission

INSTRUCTIONS: Please complete the relevant categories of the Reporting Form for each energy-related project currently being conducted or recently completed by your organization. If an umbrella project covers several separate studies, fill out a form for each one, as well as for the umbrella project. If you want any of the information you provide to be omitted from ERIS publications, make a note of this in Category 17, "Special Instructions for Proprietary Information."

In order to assist us in assigning keywords for computer access to your research information, we ask that you circle the most descriptive words and phrases of the Title and Abstract. If necessary, add additional terms of your own choosing.

If you are amending previously submitted information, please note this on the Reporting Form.

PLEASE RETURN COMPLETED REPORTING FORM(S) TO: ERIS, OLD WEST REGIONAL COMMISSION, FRATT BLDG. 306A, BILLINGS, MT 59101. If you have questions or need additional Reporting Forms, please contact us. Our phone number is: 406-245-6711 x6665 (commercial) or 585-6665 (FTS).

---

1. Date prepared ________________ Respondent ______________________________

2. Project/Program Title (please circle keywords) ______________________________

____

____

3. Project Number (descriptive number used by your organization) ______________

4. Principal Investigator (include organization name & address if different from 5 below)

Investigator ______________________________ Phone Number ____ ____

Organization ____

Address ____

____

Other Investigators:

____

____

5. Research Institution (institution/organization where or through which research is performed)

Organization ______________________________ Phone Number ____ ____

Address ____

____

Coordinator (organization whose function is to coordinate research of other entities by subcontracting and/or supervising said research; does not provide primary source funding and may or may not conduct the research itself)

Organization ______________________________

Project Monitor ______________________ Phone Number ____ _____

Address ______________________________

____

Cooperator(s) (organization(s) which provides time and/or resources toward the project but does not conduct, supervise, or fund the research)
Provide organization name(s) below:

7. Primary Sponsor (organization which provides funds)

Organization ______________________________

Project Monitor ______________________ Phone Number ____ _____

Address ______________________________

____

8. Other Sponsors (provide organization name(s) below)

____

____

____

9-10 Funding Amounts

Type of accounting period ___ Calendar year ___ Fiscal Year

Enter the *TOTALS* from each sponsor in the appropriate blanks. If the breakdown is known, enter the yearly amounts in the appropriate blanks.

	Organizations from 7 and 8 above	197__	197__	197__	Total
(Primary)	______________	$______	$______	$______	$______
(Other)	______________	$______	$______	$______	$______
	______________	$______	$______	$______	$______
	______________	$______	$______	$______	$______
				Total Funding	$______

11. Time Frame: Starting Date _____ _____ _____ Ending Date _____ _____ _____
mo. day yr. mo. day yr.

12. Actual Completion Date (leave blank if not completed) _____ _____ _____
mo. day yr.

13. Location: State(s) and, if appropriate, Region, River Basin, Counties, Cities, Township/Range/Section.

State(s) ____________________

Other Location Information ____________________

14. Abstract: Problem, Objectives, and Approach (in free form, 100-200 words; please be brief; computer space is restricted)

PLEASE CIRCLE KEYWORDS AND PHRASES. Add other descriptors if necessary.

15. Reports and Publications (title, authors, report number, date, issuing agency)

16. Availability of Reports and Publications (indicate organization and mailing address where reports can be obtained; also indicate cost and order number if appropriate)

17. Special Instructions for Proprietary Information (enter category number and information which you desire to be omitted from published material)

18. I. Type of study or program (check all that apply)

A. ☐ Basic research

B. ☐ Applied research

C. ☐ Demonstration project or program not involving research (eg, a community technical assistance program)

D. ☐ Environmental Impact Statement

II. Type of data collected (check all that apply)

A. ☐ Primary **data** sources

- ☐ Field study
- ☐ Lab. study
- ☐ Both of the above

B. ☐ Secondary data sources

C. ☐ Both A. and B. above

III. Please check one of the following.

A. ☐ The study described on this Reporting Form is an umbrella project or program. It encompasses two (2) or more separate studies which are subcontracted and/or of differing subject content. (*Please provide Reporting Forms for the separate projects or incorporate them onto this Reporting Form.)*

B. ☐ The study described on this Reporting Form is a part of an umbrella project or program. Please provide umbrella project name and overall coordinating organization below.

C. ☐ The study is a separate project or program in and of itself.

Thank you for completing this Reporting Form.

ENERGY RESEARCH INFORMATION SYSTEM

*****

00000540
PROJECT TITLE:
FORT UNION REGIONAL TASK FORCES
INVESTIGATORS:
SHEILA MEIDEMA
RESEARCH INSTITUTION:
NORTH DAKOTA LEGISLATIVE COUNCIL
CAPITOL BLDG. / BISMARCK, ND 58501
PRIMARY SPONSOR:
NORTH DAKOTA LEGISLATIVE COUNCIL
PRIMARY FUNDING AMOUNT:
111,000
TIME FRAME:
APR. 15, 1976 TO APR. 1, 1977
LOCATION:
MT ND SD WY
ABSTRACT:

BECAUSE OF THE ANTICIPATED LARGE-SCALE DEVELOPMENT OF THE VAST LIGNITE RESOURCES IN THE FORT UNION COAL FORMATION STATES OF MONTANA, NORTH DAKOTA, SOUTH DAKOTA AND WYOMING. THERE IS NEED FOR THE DEVELOPMENT OF A PERMANENT MECHANISM TO FACILITATE INFORMATION EXCHANGE AND MOVEMENT TOWARD JOINT STANDARDS AND OTHER INTERSTATE AGREEMENTS IN THE REGION FOR THE PURPOSE OF EFFECTIVE MANAGEMENT OF THE DEVELOPMENT OF THESE NATURAL RESOURCES.

IN PHASE I OF THIS STUDY WE REQUESTED FUNDS FOR HOLDING A FOUR STATE CONFERENCE TO DISCUSS THESE PROBLEMS AND ATTEMPTED TO DEVELOP A CONCENSUS FOR THE NEED OF SUCH A MECHANISM. GOVERNORS, LEGISLATORS, MEMBERS OF THE EXECUTIVE BRANCH OF STATE GOVERNMENTS, REPRESENTATIVES OF EDUCATIONAL INSTITUTIONS, APPROPRIATE STATE AND REGIONAL FEDERAL OFFICIALS, AND OBSERVERS FROM THE PROVINCE OF SASKATCHEWAN ATTENDED THE FORT UNION COAL CONFERENCE IN OCTOBER, 1975. THE CONFERENCE AGREED TO ESTABLISH COMMITTEES ON SUBJECT AREAS OF THE PROBLEM FOR CONTINUOUS STUDY, INFORMATION EXCHANGE, AND THE POSSIBLE DEVELOPMENT OF JOINT STANDARDS AND INTERSTATE AGREEMENTS DURING THE 12 MONTHS OF PHASE II.

THE OBJECTIVE OF PHASE II IS TO ESTABLISH A SERIES OF FOUR-STATE TASK FORCES TO CONTINUE THE DISCUSSION OF COMMON PROBLEMS; EXCHANGE INFORMATION ON RESEARCH DEVELOPMENTS. TECHNICAL DATA AND POLICY DEVELOPMENT; AND SEEK AREAS WHERE POSSIBLE INTERSTATE AGREEMENTS, COMPACTS, OR COMMON STANDARDS OR POLICIES MIGHT BE FEASIBLE AND DESIRABLE FOR THE REGULATION OF VARIOUS ASPECTS OF THE DEVELOPMENT OF NATURAL RESOURCES IN THE FOUR STATES OF THE FORT UNION COAL FORMATION. (MEAC)

*****

00000541
PROJECT TITLE:
WEST CENTRAL NORTH DAKOTA ENERGY DEVELOPMENT ENVIRONMENTAL IMPACT STATEMENT
PROJECT NUMBER:
OWRC 10670254
INVESTIGATORS:
GARY JOHNSON
RESEARCH INSTITUTION:
NORTH DAKOTA NATURAL RESOURCES COUNCIL
STATE CAPITOL / BISMARCK, ND 58501
PRIMARY SPONSOR:
OLD WEST REGIONAL COMMISSION
ALAN B. MINIER
1730 K ST. NW. SUITE 426 / WASHINGTON, D.C. 20006
PRIMARY FUNDING AMOUNT:
192,000
TIME FRAME:
JULY 1, 1976 TO AUG. 31, 1977
LOCATION:
ND - WEST CENTRAL AREA
ABSTRACT:

GRANT WILL BE USED TO ASSIST STATE PARTICIPATION IN PREPARATION OF THE WEST CENTRAL NORTH DAKOTA ENERGY DEVELOPMENT EIS.

*****

00000542
PROJECT TITLE:
MONTANA ENERGY DATA PROJECT
INVESTIGATORS:
TERRY WHEELING
RESEARCH INSTITUTION:
MONTANA ENERGY ADVISORY COUNCIL
STATE CAPITOL / HELENA, MT 59601
PRIMARY SPONSOR:
U.S. FEDERAL ENERGY ADMINISTRATION
PRIMARY FUNDING AMOUNT:
3,000
TIME FRAME:
JAN., 1976 TO SEPT., 1976
ABSTRACT:

THIS PROJECT WILL ASSEMBLE AND ASSESS MONTANA ENERGY DATA AND INPUT THIS DATA INTO AN AUTOMATED DATA STORAGE AND RETRIEVAL SYSTEM. DATA WILL BE COLLECTED PRIMARILY FROM PUBLISHED REPORTS OF STATE AGENCIES (DEPT. OF REVENUE, OIL & GAS COMMISSION, PUBLIC SERVICE COMMISSION). FEDERAL AGENCIES (BUREAU OF MINES, FEDERAL POWER COMMISSION, FED-

ERAL HIGHWAY ADMINISTRATION, FEDERAL ENERGY ADMIN.) AND ENERGY-RELATED TRADE JOURNALS (EDISON ELECTRIC INSTITUTE, AMERICAN GAS ASSOCIATION, COAL AGE, ETHYL CORPORATION). THE PRIMARY OBJECTIVES OF THE PROJECT WILL BE TO: 1. MAKE THE DATA MORE READILY AVAILABLE TO STATE AGENCIES AND RESEARCHERS INVOLVED IN MONTANA ENERGY SUPPLY/DEMAND STUDIES; 2. ENABLE VERIFICATION OF THIS DATA BETWEEN THE VARIOUS SOURCES; 3. PROVIDE A FLEXIBLE INTERFACE WITH AVAILABLE AUTOMATED MONTANA DEMOGRAPHIC AND ECONOMIC DATA; AND 4. ENABLE SIMPLE UPDATING (AS WELL AS POSSIBLE EXPANSION) OF THE DATA SET. (MEAC)

* * * * *

0000543
ROJECT TITLE:
PROPOSED EXPANSION OF WESTERN ENERGY COMPANY'S ROSEBUD MINE INTO AREA B - DRAFT AND FINAL ENVIRONMENTAL IMPACT STATEMENT
NVESTIGATORS:
BRACE HAYDEN
ESEARCH INSTITUTION:
MONTANA DEPT. OF STATE LANDS
HELENA, MT 59601
RIMARY SPONSOR:
MONTANA DEPT. OF STATE LANDS
IME FRAME:
SEPT. 30, 1975 TO JULY 15, 1976
OCATION:
MT - ROSEBUD MINE NEAR COLSTRIP
BSTRACT:
WESTERN ENERGY CO. IS SEEKING TO EXPAND THEIR MINE INTO A NEW MINING AREA ENTITLED AREA B. AREA B IS LOCATED APPROXIMATELY ONE MILE TO THE SOUTHWEST OF COLSTRIP. SPECIFICALLY WECO WANTS TO PERMIT 1,176 ACRES: 1. 491.22 ACRES FOR STRIP MINING OR SPOILING. 2. 107.04 ACRES FOR HAUL ROADS AND FACILITIES, AND 3. 577.02 ACRES FOR ASSOCIATED DISTURBANCE. INCLUDED IN THE PERMIT APPLICATION IS A REQUEST FOR A DRAGLINE CORRIDOR TO MOVE ONE OF WECO'S DRAGLINES ACROSS ARMELLS CREEK. (MEAC)
EPORTS AND PUBLICATIONS:
FINAL ENVIRONMENTAL IMPACT STATEMENT AVAILABLE FROM MONTANA DEPT. OF STATE LANDS, HELENA, MT 59601

* * * * *

0000544
ROJECT TITLE:
POWDER RIVER ENVIRONMENTAL IMPACT STATEMENT
ROJECT NUMBER:
OWRC 10770033
INVESTIGATORS:
KEITH L. COLBO
RESEARCH INSTITUTION:
MONTANA OFFICE OF THE GOVERNOR
STATE CAPITOL / HELENA, MT 59601
PRIMARY SPONSOR:
OLD WEST REGIONAL COMMISSION
ALAN B. MINIER / 1730 'K' STREET, N.W. / WASHINGTON, D. C. 20006
PRIMARY FUNDING AMOUNT:
293,000
TIME FRAME:
NOV. 1, 1976 TO MAR. 31, 1978
LOCATION:
MT - NORTHERN POWDER RIVER BASIN
ABSTRACT:
TO ASSIST THE STATE OF MONTANA IN FULLY PARTICIPATING IN THE PREPARATION OF THE NORTHERN POWDER RIVER BASIN EIS; THROUGH A GRANT TO THE OFFICE OF THE GOVERNOR, TO HIRE PERSONNEL TO PARTICIPATE ON THE STATE'S BEHALF IN THE PREPARATION PROCESS.
TYPE OF STUDY:
PART OF 'NORTHERN POWDER RIVER BASIN ENERGY DEVELOPMENT ENVIRONMENTAL IMPACT STATEMENT.'

* * * * *

00000545
PROJECT TITLE:
ENERGY RELATED GRADUATE TRAINEES - ENVIRONMENT
PROJECT NUMBER:
8051
INVESTIGATORS:
ROBERT MCCULLOGH
RESEARCH INSTITUTION:
UNIV. OF WYOMING, GRADUATE SCHOOL
LARAMIE, WY 82071
PRIMARY SPONSOR:
NATIONAL SCIENCE FOUNDATION
PRIMARY FUNDING AMOUNT:
121,800
TIME FRAME:
SEPT. 1, 1975 TO SEPT. 30, 1978
LOCATION:
WY
ABSTRACT:
PURPOSE: TO FUND GRADUATE TRAINEES IN THE GENERAL AREAS OF 1. ATMOSPHERIC POLLUTION MODELING AND MONITORING; 2. GEOCHEMISTRY OF COAL; 3. RECLAMATION OF STRIPPED AREAS; 4. ENVIRONMENTAL IMPACT STUDIES / ECOSYSTEMS ASSESSMENT.

*****

00000546

PROJECT TITLE:
BIBLIOGRAPHIES OF PUBLISHED AND UNPUBLISHED TECHNICAL INFORMATION ON WELUT TEST AREAS

RESEARCH INSTITUTION:
NORTH DAKOTA STATE GAME & FISH COMMISSION
NEW MEXICO GAME & FISH DEPT.
UTAH DIV. OF WILDLIFE RESOURCES
ECOLOGY CONSULTANTS, INC.

PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
ROBERT RALEIGH / RM. 206, FED. BLDG. / FT. COLLINS, CO

PRIMARY FUNDING AMOUNT:
165,000

TIME FRAME:
JULY, 1976 TO MAY, 1977

LOCATION:
MT WY CO UT NM ND

ABSTRACT:

ANNOTATED, KEYWORDED AND INDEXED BIBLIOGRAPHIES WILL BE PREPARED ON THE AVAILABLE PUBLISHED AND UNPUBLISHED TECHNICAL INFORMATION PERTAINING TO FIVE REGIONAL ENVIRONMENTAL TEST AREAS LOCATED IN ENERGY DEVELOPMENT AREAS IN THE FOLLOWING INTERIOR WESTERN STATES: SOUTHWESTERN NORTH DAKOTA, SOUTHEAST MONTANA/NORTHEAST WYOMING, NORTHWEST COLORADO, SOUTHERN UTAH, AND NORTHWEST NEW MEXICO.
THE SPECIFIC BREAKDOWN OF TASKS IS: NORTH DAKOTA STATE GAME AND FISH COMMISSION - UNPUBLISHED INFORMATION ON NORTH DAKOTA; NEW MEXICO GAME AND FISH DEPARTMENT - UNPUBLISHED INFORMATION FOR NEW MEXICO; UTAH DIVISION OF WILDLIFE RESOURCES - UNPUBLISHED INFORMATION ON UTAH; ECOLOGY CONSULTANTS, INC. - UNPUBLISHED INFORMATION ON MONTANA, WYOMING AND COLORADO AND PUBLISHED INFORMATION FOR ALL AREAS.

REPORTS AND PUBLICATIONS:

COPIES AVAILABLE BY MAY, 1977 FROM U.S. FISH & WILDLIFE SERV., WELUT. CONTACT PROJECT MONITOR FOR MORE INFORMATION ON SUPPLY OF DOCUMENTS AND COST OF EACH PUBLICATION.

* * * * *

000547
ROJECT TITLE:
PLANT RESPONSE AND LIVESTOCK PERFORMANCE ON COAL MINE SPOILS PASTURES
NVESTIGATORS:
DR. EDWARD J. DEPUIT / RICHARD L. HODDER
MONTANA STATE UNIV., DEPT. OF ANIMAL & RANGE SCIENCES
ESEARCH INSTITUTION:
MONTANA STATE UNIV., AG. EXP. STATION
BOZEMAN, MT. 59715
RIMARY SPONSOR:
WESTERN ENERGY CO.
BUTTE, MT 59701
RIMARY FUNDING AMOUNT:
25,000
IME FRAME:
JAN. 1, 1976 TO DEC. 31, 1976
OCATION:
MT
BSTRACT:

THE OVERALL OBJECTIVE OF THE PROPOSED RESEARCH IS TO DETERMINE IF A GIVEN TYPE OF SPOIL VEGETATION AS PRODUCED IN THE RECLAMATION PROCESS IS AS PRODUCTIVE, STABLE, AND USEFUL AS THAT WHICH EXISTED ON NATIVE RANGE PREVIOUS TO DISTURBANCE BY SURFACE MINING FOR COAL.

SPECIFIC OBJECTIVES FOR THE FIELD TRIALS AT COLSTRIP DURING THE 1976 FUNDING PERIOD ARE THE FOLLOWING: 1. EVALUATE THE QUALITY AND PALATABILITY OF VEGETATION PRODUCED EXCLUSIVELY ON SPOILS WITH LIVESTOCK USE THROUGHOUT THE GRAZING PERIOD FROM EARLY SPRING THROUGH LATE FALL. 2. DETERMINE THE RELATIVE MERITS OF SEASON-LONG GRAZING OF SPOILS VEGETATION VS. A COMPLEMENTARY SPOILS-NATIVE GRAZING SYSTEM. 3. DETERMINE THE DEGREE AND SIGNIFICANCE OF COMPACTION OF SPOIL MATERIAL CAUSED BY TRAMPLING EFFECTS OF LIVESTOCK. 4. COLLECT DATA ON THE SUCCESSIONAL RESPONSE OF MINE SPOIL PLANT COMMUNITIES THAT OCCURS WITH SEASON-LONG SEQUENTIAL GRAZING PRESSURE.

5. EVALUATE THE INFLUENCE OF GRAZING ON MINE SPOIL VEGETATION IN SCATTER OF SEED, PLANT PRODUCTIVITY, ACCUMULATION OF ORGANIC MATTER AND SOIL FERTILITY. (MEAC)

* * * * *

0000548
ROJECT TITLE:
SNOW BARRIER POTENTIAL FOR HARVESTING MOISTURE IN TRANSECTS ACROSS CHINOOK AREAS IN MONTANA
ROJECT NUMBER:
G&C 986
INVESTIGATORS:
JOSEPH M. CAPRIO
RESEARCH INSTITUTION:
MONTANA STATE UNIV., DEPT. OF PLANT AND SOIL SCIENCES
BOZEMAN, MT 59715
COOPERATOR:
MONTANA STATE UNIV., AG. EXP. STATION
U. S. AG. RESEARCH SERVICE
PRIMARY SPONSOR:
U.S. DEPT. OF INTERIOR, OFFICE OF WATER RESEARCH & TECH.
WASHINGTON, D.C.
PRIMARY FUNDING AMOUNT:
106,943
TIME FRAME:
JULY 1, 1976 TO JULY 1, 1980
LOCATION:
MT
ABSTRACT:

OBJECTIVES: 1. TO ESTABLISH OBSERVATION SITES ALONG TWO TRANSECTS, EACH OF WHICH INCLUDES AREAS OF BOTH RELATIVELY HIGH AND LOW CHINOOK FREQUENCY. 2. TO DETERMINE CHARACTERISTIC DIFFERENCES IN SOIL MOISTURE DYNAMICS IN AND OUT OF CHINOOK AREAS DURING THE WINTER PERIOD. 3. TO DETERMINE HOW VARIOUS SNOW BARRIERS MODIFY HARVEST OF SNOW WATER IN AND OUT OF CHINOOK AREAS.

POSSIBLE APPLICATIONS OF STUDY RESULTS THAT ARE ENERGY RELATED: 1. WATER CONSERVATION DURING WINTER COULD HELP REALIZE GREATER CROP YIELDS PER UNIT OF ENERGY EXPENDITURE. 2. RESEARCH COULD HELP IN RECLAMATION OF NEW COAL MINING AREAS OF EASTERN MONTANA. 3. THIS WORK COULD PROVIDE INFORMATION USEFUL FOR COMBATING SALINE SEEP. CONTROL OF SALINE SEEP COULD LEAD TO VARIOUS FORMS OF ENERGY CONSERVATION. (MEAC)

* * * * *

00000549
PROJECT TITLE:
DEVELOP GRASS, SHRUB, AND TREE PLANTING TECHNIQUES ON COAL SURFACE MINE SPOILS
PROJECT NUMBER:
E1E4-L1A (1H)
INVESTIGATORS:
S. MONSON / E. Z. RICHARDSON / N. FRISCHKNECHT
RESEARCH INSTITUTION:
U.S. FOREST SERVICE. INTERMTN. FOREST & RANGE EXP STATION
860 N. 12TH EAST / LOGAN, UT 84321
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59101
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
7,000

SECONDARY FUNDING AMOUNTS:
5,000
TIME FRAME:
OCT., 1975 TO DEC., 1978
LOCATION:
MT WY UT - DECKER, GILLETTE, ALTON
ABSTRACT:

PROBLEM: TECHNIQUES FOR ESTABLISHING GRASS, SHRUB, AND TREE VEGETATION ON ARID AND ALKALINE COAL MINE SPOILS NEED TO BE DEVELOPED OR IMPROVED.

OBJECTIVES: TO DETERMINE METHODS THAT ARE BEST SUITED FOR ESTABLISHING SUCH COVERS AT DECKER, BLACK THUNDER AND ALTON COAL SURFACE-MINING SITES.

APPROACH: FOLLOWING BIOASSAYS TO DETERMINE SUITABILITY OF SPECIES, FIELD TRIALS ON SPOILS USING ALTERNATIVE SEASON, DEPTH, FERTILIZER, SUPPLEMENTAL IRRIGATION, MULCH, ETC. COMBINATIONS. (SEAM)

*****

00000550
PROJECT TITLE:
DEVELOPMENT OF IMPROVED VARIETIES OF GRASSES TOLERANT TO ARID AND SALINE SOILS FOR RECLAMATION OF SURFACE-MINED AREAS.
PROJECT NUMBER:
C1C3-LT (EM)
INVESTIGATORS:
DR. D. DEWEY / DR. K. ASAY / P. E. PACKER
RESEARCH INSTITUTION:
U.S. AG. RESEARCH SERVICE
LOGAN, UT
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE / BILLINGS, MT 59102
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
12,000
SECONDARY FUNDING AMOUNTS:
8,000
TIME FRAME:
JUNE, 1975 TO JUNE, 1979
ABSTRACT:

PROBLEM: REVEGETATION OF HIGHLY-ACID AND HIGHLY-SALINE SURFACE MINE SPOILS AND TAILINGS REQUIRES PLANTS THAT ARE ESPECIALLY TOLERANT OF THESE EXTREME PH CONDITIONS. AS WELL AS TOLERANT OF HIGH CONCENTRATIONS OF DISSOLVED HEAVY METALS OR SEMI-METALS THAT ARE TOXIC.

OBJECTIVES: DEVELOP NEW GENETIC STRAINS OR VARIETIES OF AGROPYRON, ELYNOBES, AND HORDBLURM GRASSES THAT ARE ESPECIALLY TOLERANT TO EXTREME PH AND METAL TOXICITY CONDITIONS.

APPROACH: UTILIZE EXPERT KNOWLEDGE AND PROGRESS OF A.R.S. GRASS GENETICS RESEARCH PROJECT OF LOGAN TO DEVELOP THESE IMPROVED GENOTYPES. (SEAM)

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00000551
PROJECT TITLE:
REVEGETATION OF ARID COAL MINE SPOILS AT BLACK THUNDER MINE IN EASTERN WYOMING
PROJECT NUMBER:
C1C2-L7
INVESTIGATORS:
B. Z. RICHARDSON / E. E. FARMER
RESEARCH INSTITUTION:
U.S. FOREST SERVICE INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321
COOPERATOR:
ATLANTIC RICHFIELD CO.
DENVER, CO
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59102
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
5,000
SECONDARY FUNDING AMOUNTS:
4,000
TIME FRAME:
SEPT., 1975 TO SEPT., 1980
LOCATION:
WY - GILLETTE BLACK THUNDER MINE
ABSTRACT:

OBJECTIVES: 1. DETERMINE THE MINIMUM COMBINATION OF TREATMENTS NECESSARY TO ACHIEVE AN ACCEPTABLE STAND OF GRASS, SHRUBS AND TREES.
2. TO ASSESS THE SHORT AND LONG TERM MERITS OF GRASS MIXTURES CONSISTING OF A. ALL INTRODUCED GRASSES. B. ALL NATIVE GRASSES AND C. NATIVE PLUS INTRODUCED GRASSES.
3. TO ASSESS DIFFERENCES BETWEEN WOOD FIBER AND STRAW MULCH. THIS STUDY IS DIRECTED TOWARD DEVELOPING THE KNOWLEDGE AND TECHNOLOGY TO REVEGETATE MINING OVERBURDEN WASTES UNDER A VARIETY OF CLIMATIC CONDITIONS. OVERBURDEN MATERIALS VARY WIDELY IN THEIR CHEMICAL AND PHYSICAL PROPERTIES, FROM SODIC ALKALINE SPOILS TO SEVERELY ACID SPOILS. THE ARCO SITE WAS ESTABLISHED TO DEMONSTRATE REVEGETATION TECHNIQUES ON WYOMING COAL SPOILS. ARCO PREPARED THE EXPERIMENTAL PLOTS WITH THEIR EQUIPMENT. THE OVERALL PROJECT INCLUDES MORE THAN

EARCH PLOTS AND WAS ESTABLISHED IN 1972. THEY
NG MONITORED AND ASSESSED ON A YEARLY BASIS.
IMPORTANT CONCLUSIONS HAVE BEEN PUBLISHED AS A
OF THIS WORK. (SEAM)

* * * *

TLE:
AUTOMATIC IRRIGATION SYSTEMS FOR GRASSES, SHRUBS
ES.
MBER:
.
ORS:
RICHARDSON / P. E. PACKER
NSTITUTION:
REST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
12TH EAST / LOGAN, UT 84321
ONSOR:
REST SERVICE, SURFACE ENVIRONMENT AND MINING
ND AVE. / BILLINGS, MT 59102
SPONSORS:
REST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
NDING AMOUNT:

FUNDING AMOUNTS:

:
1973 TO JUNE, 1977

- DECKER, MT; SAND WASH, UT

M: SUPPLEMENTAL IRRIGATION OF VEGETATION ON RE-
TATED SURFACE MINE SPOILS REQUIRES FREQUENT APPLI-
S OF WATER TO KEEP THE SURFACE SPOIL LAYERS MOIST
SEEDLINGS ARE TRYING TO PUT ROOTS DOWN. IN SEMI-
ND ARID AREAS, ESPECIALLY DURING THE HOTTEST PART OF
OWING SEASON, APPLICATIONS OF WATER EVERY FEW HOURS
NECESSARY. ACCORDINGLY, AUTOMATED ON-OFF IRRIGA-
YSTEMS ARE DESIRABLE TO CIRCUMVENT THE NEED FOR
E TO MONITOR THE SITE CONTINUOUSLY.
IVES: TO DESIGN SUITABLE OVERHEAD SPRINKLER
FOR USE ON RESEARCH AND DEMONSTRATION SITES TO
IGATED.
CH: ACQUIRE NEEDED CONTROL SYSTEMS (TIMERS.
, ETC). ASSEMBLE AND TEST. INSTALL IN FIELD.

* * * * *

00000553
PROJECT TITLE:
DEVELOP CRITERIA FOR UTILIZATION OF IRRIGATION TO AMELIORATE ADVERSE SITE CONDITIONS FOR INITIAL PLANT COVER ESTABLISHMENT
PROJECT NUMBER:
0105-L7
INVESTIGATORS:
B. Z. RICHARDSON / P. E. PACKER
RESEARCH INSTITUTION:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE / BILLINGS, MT 59102
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
4,000
SECONDARY FUNDING AMOUNTS:
9,000
TIME FRAME:
JUNE, 1973 TO 1978
LOCATION:
MT ID UT - DECKER, MT; COBALT, ID; SODA SPRINGS, ID; SAND WASH, UT
ABSTRACT:
PROBLEM: IN SEMIARID AREAS OF THE WEST, ESTABLISHMENT OF VEGETATION ON SURFACE MINE SPOILS MAY REQUIRE SUPPLEMENTAL IRRIGATION FOR ONE OR MORE GROWING SEASONS, ESPECIALLY DURING PERIODS OF DRY GROWING SEASONS. SOME AREAS MAY REQUIRE AN INITIAL PERIOD OF SUPPLEMENTAL IRRIGATION FOR SUCCESSFUL PLANT COVER ESTABLISHMENT IN ALMOST ANY YEAR. ACCORDINGLY, WHAT ARE THE IRRIGATION REQUIREMENTS UNDER SUCH CONDITIONS AND HOW EFFECTIVE ARE THEY? HOW LONG DO THEY LAST?
OBJECTIVES: TO DETERMINE THE EFFECTIVENESS OF SUPPLEMENTAL IRRIGATION AND THE DURATION OF ITS EFFECTIVENESS AFTER TERMINATION ON ESTABLISHMENT OF VEGETATION ON SEMI-ARID AND MINE SPOILS.
APPROACH: COMPARE IRRIGATED AND NON-IRRIGATED BLOCKS OF RESEARCH PLOTS FOR SURVIVAL, GROWTH, AND PRODUCTION OF REVEGETATED PLANT MATERIALS. (SEAM)

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00000554
PROJECT TITLE:
EFFICIENCY OF CO2 FIXATION OF PLANTS ON DIFFERENT MINE SPOILS

PROJECT NUMBER:
C-106-L2
INVESTIGATORS:
RAY W. BROWN / LORRAINE VAN KEKERIX
RESEARCH INSTITUTION:
U.S. FOREST SERVICE, FORESTRY SCI. LAB
LOGAN, UT 84321
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE / BILLINGS, MT 59102
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
5,000
SECONDARY FUNDING AMOUNTS:
3,000
TIME FRAME:
JUNE 1, 1975 TO SEPT. 30, 1978
LOCATION:
MT UT
ABSTRACT:

A CO2 SYSTEM FOR MONITORING THE INSITU CO2 FIXATION IN PLANTS WAS DEVELOPED AT THE LOGAN LAB IN EARLY 1975. THE SYSTEM WAS FIELD TESTED DURING THE 1975 FIELD SEASON ON ALPINE PLANTS GROWING ON MINE SPOILS AND ON UNDISTURBED TUNDRA. THE DATA INDICATE THAT CO2 FIXATION IS A GOOD INDICATION OF PHOTOSYNTHESIS RATE IN PLANTS. INITIAL RESULTS SHOW THAT PLANTS GROWING IN ACIDIC MINE SPOILS ARE LESS EFFICIENT AT FIXING CO2 PER UNIT LEAF AREA PER UNIT TIME THAN SAME SPECIES IN ADJACENT UNDISTURBED TUNDRA. RESEARCH IS CONTINUING. (SEAM)

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00000555
PROJECT TITLE:
EVALUATE AND DETERMINE SPECIES ADAPTABILITY ON SURFACE MINE OVERBURDEN AND SPOILS RESULTING FROM COAL MINING IN EASTERN MONTANA ASSESSED BY GREENHOUSE BIOASSAY TECHNIQUES
PROJECT NUMBER:
E162-L1A
INVESTIGATORS:
B. Z. RICHARDSON / E. E. FARMER
RESEARCH INSTITUTION:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59102
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
7,000
SECONDARY FUNDING AMOUNTS:
11,000
TIME FRAME:
1974 TO 1977
LOCATION:
MT
ABSTRACT:

PROBLEM: SPOIL MATERIALS USUALLY CONTAIN MANY CHARACTE
ISTICS AND CHEMICAL SUBSTANCES THAT ARE NOT CONDUCIVE T
PLANT EMERGENCE, SURVIVAL, AND GROWTH.
OBJECTIVE: TO DETERMINE GERMINATION AND EMERGENCE THRO
BIOASSAY TECHNIQUE OF DESIRABLE GRASSES.
APPROACH: PLANTS WILL BE MEASURED FOR EMERGENCE AS WEL
AS SHOOT GROWTH DURING A PERIOD OF THIRTY DAYS. PLANTS WILL THEN BE EVALUATED IN TERMS OF ROOT AND SHOOT GROWTH. (SEAM)

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00000556
PROJECT TITLE:
THE INFLUENCE OF TOPSOIL DEPTH ON PLANT COVER ESTABLISHMENT AND GROWTH ON SODIC COAL MINE OVERBURDEN PILES
PROJECT NUMBER:
E163-L1
INVESTIGATORS:
B. Z. RICHARDSON / E. E. FARMER
RESEARCH INSTITUTION:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STA
860 N. 12TH EAST / LOGAN, UT 84321
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59102
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STA
PRIMARY FUNDING AMOUNT:
9,000
SECONDARY FUNDING AMOUNTS:
9,000
TIME FRAME:
APR., 1976 TO JAN., 1978
LOCATION:
MT - DECKER, MT, DECKER COAL MINE
ABSTRACT:

ONE OF THE GREATEST NEEDS IN THE COAL MINING AREA IS T
DETERMINE THE AMOUNT OF TOPSOIL NEEDED TO REVEGETATE C
MINE SPOILS. THE STATE OF MONTANA REQUIRES BY LAW EIG
FEET OF TOPSOIL WHICH IS IMPOSSIBLE.
THIS STUDY WILL RELATE TOPSOIL DEPTH AND SELECTED SOIL
SPOIL PROPERTIES TO TOTAL PLANT BIOMASS. MULTIPLE REG
SION ANALYSIS WILL BE UTILIZED TO ASCERTAIN THE INFLUE
OF MAIN EFFECTS AND INTERACTIONS. (SEAM)

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0000557
ROJECT TITLE:
REDUCTION OF HIGH SODIUM CONTENT IN COAL MINE SPOILS WITH TIME
ROJECT NUMBER:
C1B3-L4
NVESTIGATORS:
BLAND Z. RICHARDSON
ESEARCH INSTITUTION:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321
RIMARY SPONSOR:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
145 GRAND AVE. / BILLINGS, MT 59102
ECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
RIMARY FUNDING AMOUNT:
2,000
ECONDARY FUNDING AMOUNTS:
5,000
IME FRAME:
SEPT., 1972 TO SEPT., 1977
OCATION:
MT - DECKER COAL MINE
BSTRACT:
PROBLEM: HIGH SODIUM SPOILS CREATE A MAJOR PROBLEM IN THE SUCCESSFUL REVEGETATION OF MINE SPOILS IN SE MONTANA.
OBJECTIVE: TO MEASURE THE EFFECT OF TIME ON THE S.A.R. WITHIN THE UPPER PORTION OF THE SOIL PROFILE.
APPROACH: TREATMENTS WILL CONSIST OF TOPSOILING, WATERING, AND CHEMICAL TREATMENTS. (SEAM)

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0000558
ROJECT TITLE:
HANGING WOMAN RECLAMATION STUDY AREA
ROJECT NUMBER:
12-1977
NVESTIGATORS:
ROBERT DELK / JIM CULBERTSON / RICH EHRNS / DICK HADLEY
WAYNE VAN VOAST
ESEARCH INSTITUTION:
U.S. BUREAU OF LAND MANAGEMENT
RIMARY SPONSOR:
U.S. BUREAU OF LAND MANAGEMENT, EMRIA
LEADER, REHAB DATA STAFF / D-307, BG-50 / DENVER FED CENTER /
DENVER, CO 80225
SECONDARY SPONSORS:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
PRIMARY FUNDING AMOUNT:
FY 77 - 88,000 / FY 78 - 40,000
TOTAL 128,000
SECONDARY FUNDING AMOUNTS:
U.S.G.S. - FY 77 15,000
TIME FRAME:
OCT. 1, 1976 TO SEPT. 30, 1979
LOCATION:
MT - TRIBUTARY TO HANGING WOMAN CREEK
ABSTRACT:
THE HANGING WOMAN STUDY AREA IS A BLM COORDINATED INTER-AGENCY EFFORT. GEOLOGIC MAPPING, HYDROLOGIC INVESTIGATIONS AND GEOCHEMICAL CHARACTERIZATIONS ARE CONDUCTED BY THE USGS. MONTANA BUREAU OF MINES & GEOLOGY IS ASSISTING IN GROUNDWATER INVESTIGATIONS AND SUPERVISING THE DRILLING. THE STUDY BOUNDARY IS THE E. FORK OF TRAIL CREEK WATERSHED, APPROXIMATELY 15 MILES. THE OBJECTIVE IS A PRE-MINING CHARACTERIZATION OF THE HYDROLOGY AND GEOLOGY OF THE WATERSHED.
TYPE OF STUDY:
PART OF 'ENERGY MINERALS REHABILITATION INVENTORY AND ANALYSIS - EMRIA,' U.S. BUREAU OF LAND MANAGEMENT.
REPORTS AND PUBLICATIONS:
HANGING WOMAN RECLAMATION STUDY AREA. USGS, BLM, MBMG. 12-1977. FINAL REPORT DUE JAN. 1978.
AVAILABLE FROM BLM - BILLINGS, MT.

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00000559
PROJECT TITLE:
EAST TRAIL CREEK STUDY TO ASSESS WATER PROBLEMS ASSOCIATED WITH RECLAMATION OF MINED LANDS
PROJECT NUMBER:
MT T-058
INVESTIGATORS:
GEORGE PIKE / BILL HOTCHKISS / DON AYERS / JEFF STONER
RESEARCH INSTITUTION:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
P. O. BOX 1696 / HELENA, MT 59601
TIME FRAME:
OCT. 1, 1976 TO CONTINUING
LOCATION:
MT - POWDER RIVER BASIN, T. 9S. R. 44W.
ABSTRACT:
PROBLEM: BEFORE COAL IS PUT UP FOR LEASE THE WATER PROBLEMS THAT MAY BE ASSOCIATED WITH MINING AND RECLAMATION NEED TO BE KNOWN FOR EACH SITE PROPOSED FOR MINING. THE EXTENT AND DEGREE OF THE WATER PROBLEMS WILL BE IMPORTANT FACTORS IN SELECTING THE SITES THAT WILL BE MADE AVAILABLE FOR

LEASING.
OBJECTIVE: PROVIDE THE DATA AND INTERPRETATIONS NECESSARY TO DEFINE THE WATER PROBLEMS THAT MAY BE IMPORTANT DURING MINING AND RECLAMATION AND SUGGEST ALTERNATE SOLUTIONS TO THEM. DESIGN A MONITORING SYSTEM TO DEFINE BASELINE CONDITIONS AND DOCUMENT CHANGES IN WATER FLOW AND QUALITY ASSOCIATED WITH MINING AND RECLAMATION. DEVELOP TECHNIQUES AND PROCEDURES THAT WILL AID IN PERFORMING FUTURE STUDIES OF THIS TYPE.
APPROACH: IN CONJUNCTION WITH USBR, BLM, AND OTHER DIVISIONS OF THE USGS, DRILL TEST HOLES, COMPILE AND INTERPRET GEOLOGIC, HYDROLOGIC, AND GEOPHYSICAL DATA TO DESCRIBE THE HYDROLOGIC SYSTEM AND PREDICT THE PROBLEMS. DEVELOP DIGITAL MODELS TO RELATE CAUSES AND EFFECTS AND TO MAKE QUANTITATIVE PREDICTIONS OF WATER LEVEL CHANGES AS WELL AS CHANGES IN FLOW OF SPRINGS. WRITE A REPORT DESCRIBING THE HYDROLOGIC SYSTEM, PREDICTING PROBLEMS AND MITIGATING MEASURES, AND DESCRIBING THE MONITORING SYSTEM.
TYPE OF STUDY:
THIS PROJECT IS PART OF THE HANGING WOMAN RECLAMATION STUDY AREA.

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00000560
PROJECT TITLE:
PUMPKIN CREEK, MONTANA RECLAMATION STUDY AREA
PROJECT NUMBER:
11-1977
INVESTIGATORS:
HERMAN K. DUPREE / HAROLD WARD / RICHARD HADLEY / ED LANDIS
RESEARCH INSTITUTION:
U.S. BUREAU OF RECLAMATION
FEDERAL BLDG. / BILLINGS, MT 59101
COORDINATOR:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
PRIMARY SPONSOR:
U.S. BUREAU OF LAND MANAGEMENT, EMRIA
LEADER, REHAB DATA STAFF / D-307, BG 50 / DENVER FED CENTER / DENVER, CO 80225
PRIMARY FUNDING AMOUNT:
FY 77 - 180,000
TIME FRAME:
OCT. 1, 1976 TO SEPT. 30, 1977
LOCATION:
MT - NEAR BROADUS
ABSTRACT:
PURPOSE: TO ESTABLISH BASELINE CONDITIONS ON SOIL, OVERBURDEN, COAL RESOURCE, SURFACE AND GROUND WATER QUANTITY AND QUALITY, VEGETATION AND SEDIMENTATION OF PUMPKIN CREEK SITE BEING CONSIDERED FOR MINING. FROM THESE DATA GUIDANCE FOR PREPARATION OF STIPULATIONS IN FUTURE LEASES WILL BE PREPARED. ALTERNATE RECLAMATION TECHNIQUES AND VEGETATION TYPES WILL BE DESCRIBED. WATER MONITORS WILL REMAIN ON SITE UNTIL BASELINE CONDITIONS ARE ESTABLISHED OR UNTIL NO FURTHER CHANGES ARE ANTICIPATED IF THE AREA IS MINED AND RECLAIMED. CHEMICAL AND PHYSICAL DATA OBTAINED ON ALL GEOLOGIC STRATA TO A DEPTH OF APPROXIMATELY 200 FEET.
TYPE OF STUDY:
PART OF ´ENERGY MINERAL REHABILITATION INVENTORY & ANALYSIS - EMRIA,´ U.S. BUREAU OF LAND MANAGEMENT.
REPORTS AND PUBLICATIONS:
PUMPKIN CREEK RECLAMATION STUDY AREA. USBR / USGS. 11-1977. DUE MARCH, 1978.
AVAILABLE FROM BLM, MILES CITY, MT AND BLM, BILLINGS, MT

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00000561
PROJECT TITLE:
WHITETAIL BUTTE RECLAMATION STUDY AREA
PROJECT NUMBER:
13-1977
INVESTIGATORS:
HERMAN K. DUPREE / HAROLD WARD / RICHARD HADLEY / MARLIN LOWRY / LARRY CAREY
RESEARCH INSTITUTION:
U.S. BUREAU OF RECLAMATION
FED BLDG. / BILLINGS, MT 59101
COORDINATOR:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
PRIMARY SPONSOR:
U.S. BUREAU OF LAND MANAGEMENT, EMRIA
LEADER, REHAB DATA STAFF / BLDG 50 D-307 / DENVER FEDERAL CENTER / DENVER, CO 80225
PRIMARY FUNDING AMOUNT:
FY 77 - 67,000 / FY 78 - 100,000
TOTAL 167,000
TIME FRAME:
JULY 1, 1976 TO SEPT. 30, 1977
LOCATION:
WY - NEAR GILLETTE AREA
ABSTRACT:
PURPOSE: TO ESTABLISH BASELINE CONDITIONS ON SOIL, OVERBURDEN, COAL RESOURCE, SURFACE AND GROUND WATER QUANTITY AND QUALITY, VEGETATION AND SEDIMENTATION OF WHITETAIL BUTTE SITE BEING CONSIDERED FOR MINING. FROM THESE DATA GUIDANCE FOR PREPARATION OF STIPULATIONS IN FUTURE LEASES WILL BE PREPARED. ALTERNATE RECLAMATION TECHNIQUES AND VEGETATION TYPES WILL BE DESCRIBED. WATER MONITORS WILL REMAIN ON SITE UNTIL BASELINE CONDITIONS ARE ESTABLISHED OR UNTIL NO FURTHER CHANGES ARE ANTICIPATED IF THE AREA IS MINED AND RECLAIMED. CHEMICAL AND PHYSICAL DATA OBTAINED ON ALL GEOLOGIC STRATA TO A DEPTH OF APPROXIMATELY

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  200 FEET.
YPE OF STUDY:
  PART OF "ENERGY MINERAL REHABILITATION INVENTORY & ANALYSIS -
  EMRIA," U.S. BUREAU OF LAND MANAGEMENT.
EPORTS AND PUBLICATIONS:
  WHITETAIL BUTTE RECLAMATION STUDY AREA.  USBR / USGS.
  13-1977.  DUE OCT., 1977.
  AVAILABLE FROM BLM - CASPER, WY AND BLM - CHEYENNE, WY.

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0000562
ROJECT TITLE:
  BEULAH TRENCH, NORTH DAKOTA RECLAMATION STUDY AREA
ROJECT NUMBER:
  10-1976
NVESTIGATORS:
  HERMAN K. DUPPEE / HAROLD WARD / DICK HADLEY
ESEARCH INSTITUTION:
  U.S. BUREAU OF RECLAMATION
  FED. BLDG. / BILLINGS, MT  59101
OORDINATOR:
  U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
RIMARY SPONSOR:
  U.S. BUREAU OF LAND MANAGEMENT, EMRIA
  LEADER REHAB DATA STAFF / D-307, BG 50 / DENVER FED CEN-
  TER / DENVER, CO  80225
RIMARY FUNDING AMOUNT:
  FY 77 - 180,000
IME FRAME:
  OCT. 1, 1976 TO SEPT. 30, 1977
OCATION:
  N.D. - BEULAH AREA
BSTRACT:
  PURPOSE:  TO ESTABLISH BASELINE CONDITIONS ON SOIL, OVER-
  BURDEN, COAL RESOURCE, SURFACE AND GROUND WATER QUANTITY
  AND QUALITY, VEGETATION AND SEDIMENTATION OF BEULAH TRENCH
  SITE BEING CONSIDERED FOR MINING.  FROM THESE DATA GUIDANCE
  FOR PREPARATION OF STIPULATIONS IN FUTURE LEASES WILL BE
  PREPARED.  ALTERNATE RECLAMATION TECHNIQUES AND VEGETA-
  TION TYPES WILL BE DESCRIBED.  WATER MONITORS WILL REMAIN
  ON SITE UNTIL BASELINE CONDITIONS ARE ESTABLISHED OR UNTIL
  NO FURTHER CHANGES ARE ANTICIPATED IF THE AREA IS MINED
  AND RECLAIMED.  CHEMICAL AND PHYSICAL DATA OBTAINED ON
  ALL GEOLOGIC STRATA TO A DEPTH OF APPROXIMATELY 200 FEET.
YPE OF STUDY:
  PART OF "ENERGY MINERAL REHABILITATION INVENTORY & ANALY-
  SIS - EMRIA," U.S. BUREAU OF LAND MANAGEMENT
EPORTS AND PUBLICATIONS:
  BEULAH TRENCH RECLAMATION STUDY AREA.  USBR / USGS.
  10-1976.  DUE MARCH, 1978.
  AVAILABLE FROM BLM - DICKINSON, ND AND BLM - BILLINGS, MT
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00000563
PROJECT TITLE:
  EFFECT OF GRAZING ON VEGETATION AND SOILS OF RECLAIMED
  LAND AND ON ANIMAL PERFORMANCE
PROJECT NUMBER:
  M-76-2
INVESTIGATORS:
  DR. L. HOFMANN / R. E. RIES / J. F. POWER
RESEARCH INSTITUTION:
  U.S. AG. RESEARCH SERVICE, NORTHERN GR. PLAINS RESEARCH CTR.
  P. O. BOX 459 / MANDAN ND  58554
PRIMARY SPONSOR:
  U.S. AG. RESEARCH SERVICE, NORTHERN GR. PLAINS RESEARCH CTR.
  R. J. LORENZ, DIRECTOR
SECONDARY SPONSORS:
  U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
PRIMARY FUNDING AMOUNT:
  FY 76 - 77 - 73,000
SECONDARY FUNDING AMOUNTS:
  (SEAM) - FY 76 - 77 - 73,000
TIME FRAME:
  JAN. 5, 1976 TO JAN. 1, 1981
LOCATION:
  ND - CENTER, BAUKEL - NOONAN MINE
ABSTRACT:
  PROBLEM:  POTENTIAL EFFECTS OF GRAZING, INCLUDING ABUSIVE
  GRAZING, ON LONG-TERM STABILITY AND PRODUCTIVITY OF RE-
  CLAIMED GRASSLANDS AND ON ANIMAL PERFORMANCE ARE PRESENTLY
  UNKNOWN.
  OBJECTIVE:  1.  TO DETERMINE THE EFFECT OF GRAZING INTEN-
  SITY OF RECLAIMED MINED LAND UPON VEGETATIVE SURVIVAL AND
  GROWTH CHANGES IN SOIL CHARACTERISTICS, AND ANIMAL PERFOR-
  MANCE.  2.  TO DEVELOP SUITABLE METHODOLOGY AND TECHNIQUES
  TO MEASURE THE ABOVE PARAMETERS ON RECLAIMED MINED LAND.
  APPROACH:  REVEGETATED MINED LAND WAS FENCED INTO 6 PAS-
  TURES OF APPROXIMATELY 6, 4, OR 2 ACRES IN SIZE (REPLICA-
  TED TWICE), TO BE GRAZED EACH YEAR (MAY TO JULY) WITH
  3 YEARLING STEERS PER PASTURE.  ALSO IN EACH PASTURE ARE
  TWO EXCLOSURES WITH NO GRAZING.  ANIMAL WEIGHTS AND CON-
  DITION ARE RECORDED; VEGETATIVE GROWTH, CONSUMPTION, AND
  COMPOSITION ARE MEASURED; AND SOIL WATER CONTENT, INFIL-
  TRATION, AND COMPACTION ARE MONITORED - BOTH WITHIN AND
  OUTSIDE EXCLOSURES IN EACH PASTURE.

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00000564
PROJECT TITLE:
  DETERMINATION OF OPTIMUM TOPSOIL DEPTH REQUIREMENTS FOR
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SURFACE COAL-MINED AREAS WITHIN THE NORTHERN GREAT PLAINS
COAL PROVINCE: RECLAMATION
PROJECT NUMBER:
J0265025
INVESTIGATORS:
RICHARD C. BARTH
RESEARCH INSTITUTION:
COLORADO SCHOOL OF MINES, RESEARCH INSTITUTE
P.O. BOX 112 / GOLDEN. CO 80401
PRIMARY SPONSOR:
U.S. BUREAU OF MINES, DENVER MIN. RESEARCH CENTER
M. K. HARTHILL / BLDG. 20. DENVER FED. CENTER / DENVER. CO
PRIMARY FUNDING AMOUNT:
FY 76 - 100,000 / FY 77 - 40,000 / FY 78 -12.090
TOTAL 152,090
TIME FRAME:
JUNE 29, 1976 TO NOV. 16, 1978
LOCATION:
MT ND WY SD - NORTHERN GREAT PLAINS
ABSTRACT:

STATE RECLAMATION REGULATIONS IN THE NGP COAL PROVINCE APPEAR TO HAVE UNREALISTIC TOPSOIL REQUIREMENTS. IN AN EFFORT TO RE TIFY THIS RECLAMATION STIPULATION AND TO PERHAPS MAKE BOND RELEASE A LESS EXPENSIVE PROPOSITION, THE CSMRI IS TESTING WORTH OF NATIVE PLANTS ON VARIOUS DEPTHS OF TOPSOIL OVER INNOCUOUS OVERBURDEN THROUGHOUT THE NGP COAL MINED AREAS. TEST PLOTS HAVE BEEN ESTABLISHED AT MINED AREAS REPRESENTING SEVERAL SOIL TYPES THROUGHOUT THE NGP. AT LEAST TWO GROWING SEASONS WILL BE OBSERVED.

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00000565
PROJECT TITLE:
CONCEPTUAL DESIGN AND DEVELOPMENT OF A DRY LAND SODDING
RECLAMATION SYSTEM
PROJECT NUMBER:
H0262048
INVESTIGATORS:
FRED A. LEONARD
DAMES & MOORE / 605 PARFET ST. / LAKEWOOD. CO 80215
RESEARCH INSTITUTION:
DAMES & MOORE
SUITE 700 / 7101 WISCONSIN AVE. / WASHINGTON, D. C. 20014
PRIMARY SPONSOR:
U.S. BUREAU OF MINES, DENVER MIN. RESEARCH CENTER
M. HARTHILL / BLDG. 20 / DENVER FED. CENTER / DENVER, CO
PRIMARY FUNDING AMOUNT:
246,763
TIME FRAME:
SEPT. 20, 1976 TO MAR. 1, 1979
LOCATION:
MT ND WY CO UT NM AZ SD - NORTHERN GREAT PLAINS AND ROCKY
MOUNTAIN COAL PROVINCES
ABSTRACT:

DESCRIPTION OF WORK: TO DEVELOP CONCEPTUAL DESIGNS FOR A DRY LAND SODDING RECLAMATION SYSTEM; SUBJECT THESE TO FEASIBILITY ANALYSIS; DESIGN AND FABRICATE MODIFICATIONS TO EXISTING EQUIPMENT AND CONDUCT A FIELD DEMONSTRATION. VIABLE NATIVE SEED SOURCES ARE OFTEN NOT AVAILABLE AND FICKLE CLIMATIC CONDITIONS OFTEN PREVENT RAPID RECLAMATION WITHIN SEMI-ARID COAL MINED AREAS. IN AN EFFORT TO ESTABLISH SELF-SUSTAINING PLANT COMMUNITIES WITHIN A SHORT TIME, DAMES & MOORE HAS BEEN CONTRACTED TO DEVELOP A DRY LAND SODDING RECLAMATION SYSTEM WHICH SOULD INCLUDE REMOVING AN INTACT BLOCK OF SOIL WITH ITS ATTENDANT VEGETATION FROM AN AREA TO BE MINED AND PLACING THE INTACT SOD ON REGRADED SPOIL.

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00000566
PROJECT TITLE:
JIM BRIDGER MINE RECLAMATION
PROJECT NUMBER:
6662
INVESTIGATORS:
MORTON MAY
RESEARCH INSTITUTION:
UNIV. OF WYOMING, PLANT SCIENCES DIV.
UNIV. STATION / LARAMIE. WY 82071
PRIMARY SPONSOR:
PACIFIC POWER & LIGHT
GLENROCK, WY
PRIMARY FUNDING AMOUNT:
88,290
TIME FRAME:
JULY 1, 1974 TO JUNE 30. 1977
LOCATION:
WY - JIM BRIDGER MINE
ABSTRACT:

PURPOSE: TO CONDUCT RESEARCH ON CORE SAMPLES. TOP SOIL. MULCHING AND MECHANICAL SURFACE TREATMENTS. DEGREE AND DIRECTION OF SLOPE, BROWSE SPECIES ADAPTATION AND REVEGETATION TREATMENTS, AND THE ESTABLISHMENT OF DEMONSTRATION PLOTS AS RELATED TO THE TOTAL OBJECTIVES OF RECLAMATION OF MINE OVERBURDEN.

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00000567
PROJECT TITLE:
DETERMINING NATURAL RECURRENCE OF SOIL DECOMPSER POPULATIONS IN RECLAIMED MINE AREAS

PROJECT NUMBER:
10670257 (OWRC) 14-16-0008-1252 (FWS)

INVESTIGATORS:
DR. PHILLIP DITTBERNER

RESEARCH INSTITUTION:
U.S. FISH AND WILDLIFE SERV., WELUT
FED. BLDG - RM 208 / FT. COLLINS, CO 80521

PRIMARY SPONSOR:
OLD WEST REGIONAL COMMISSION
WILLIAM J. FOGARTY / HEDDEN-EMPIRE BLDG. - 228 / BILLINGS, MT

SECONDARY SPONSORS:
U.S. FISH AND WILDLIFE SERV.

PRIMARY FUNDING AMOUNT:
60,000

SECONDARY FUNDING AMOUNTS:
60,000

TIME FRAME:
SEPT. 7, 1976 TO DEC. 30, 1977

LOCATION:
WY MT ND CO

ABSTRACT:

THERE ARE MANY FACTORS IMPORTANT TO THE REESTABLISHMENT OF VEGETATIVE COVER ON MINING-DISTURBED LANDS. THE STATUS OF SOIL DECOMPOSER POPULATIONS (SAPROPHAGIC ARTHROPODS, BACTERIA, FUNGI AND ALGAE) COULD SIGNIFICANTLY CONTRIBUTE TO THE SUCCESS OR FAILURE OF REVEGETATION ON DISTURBED LANDS BUT A MINIMAL AMOUNT OF RESEARCH HAS BEEN COMPLETED THUS FAR ON THEIR STATUS.

THIS STUDY WILL INVESTIGATE THE NATURAL RECURRENCE OF MICROBIAL POPULATIONS ON MINING-DISTURBED LANDS AND COMPARE THESE POPULATIONS TO MICROBIAL POPULATIONS ON ADJACENT UNDISTURBED SITES. IF THERE IS EVIDENCE THAT THE POPULATIONS ON DISTURBED SITES AND UNDISTURBED SITES ARE SIGNIFICANTLY DIFFERENT IN PHYSIOLOGICAL OR FUNCTIONAL GROUPS PRESENT AND THEIR ABUNDANCE, ADDITIONAL RESEARCH MAY BE DESIGNED TO INVESTIGATE INOCULATION OR OTHER CULTURE TECHNIQUES FOR INCREASING MICROBIAL POPULATIONS AND ACTIVITIES ON MINING DISTURBED SITES.

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00000568

PROJECT TITLE:
AGRICULTURAL USE OF WASTE GYPSUM FROM SULFUR (SO2) SCRUBBING OPERATION

PROJECT NUMBER:
10570110

INVESTIGATORS:
J. B. SKAPTASON

RESEARCH INSTITUTION:
BIOSEARCH AND DEVELOPMENT CO., INC.
12700 PROSPECT AVE - ROUTE 30 / KANSAS CITY, MO 64146

PRIMARY SPONSOR:
OLD WEST REGIONAL COMMISSION
WILLIAM J. FOGARTY / HEDDEN-EMPIRE BLDG-228 / BILLINGS, MT

PRIMARY FUNDING AMOUNT:
134,000

TIME FRAME:
APRIL 28, 1975 TO APRIL 30, 1977

LOCATION:
MT WY ND MO

ABSTRACT:

OBJECTIVES: THE RESULTS OBTAINED FROM THIS STUDY WILL PROVIDE GUIDELINES FOR DETERMINING THE POTENTIAL OF WASTE GYPSUM FROM SULFUR (SO2) SCRUBBING OPERATIONS AS AN AGRICULTURAL SOIL AMENDMENT IN THE RECLAMATION OF SODIC SOILS. THE FOLLOWING ARE THE MAIN AREAS TO BE ADDRESSED FOR MEETING THE OVERALL OBJECTIVE STATED ABOVE: 1. SURVEY OF PERTINENT LITERATURE, RESEARCH AND INDUSTRY (SO2) SCRUBBER METHODS. 2. PHYSICAL COLLECTION OF GYPSUM WASTE, SODIC SOILS AND SPOIL PILE SAMPLES. 3. CHEMICAL ANALYSIS OF WASTE GYPSUM, ALKALI SOILS AND SPOILS MATERIALS, BEFORE AND AFTER AMENDMENT TREATMENT. 4. GREENHOUSE PLANT GROWTH TRIALS TO EVALUATE SELECTED AMENDMENTS. 5. FIELD TRIALS OF PROMISING GREENHOUSE TREATMENTS.

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00000569

PROJECT TITLE:
STATE-OF-THE-ART REVIEW OF RECLAMATION OF WESTERN WILDLIFE HABITATS

INVESTIGATORS:
DR. CYRUS M. MCKELL

RESEARCH INSTITUTION:
UTAH STATE UNIV. FOUNDATION, INST. OF LAND REHABILITATION
LOGAN, UT 84321

PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
DR. PHILLIP L. DITTBERNER / RM. 208, FED. BLDG.
FT. COLLINS, CO 80521

PRIMARY FUNDING AMOUNT:
49,000

TIME FRAME:
JULY 15, 1976 TO FEB. 1, 1977

LOCATION:
MT WY ND SD UT CO AZ NM

ABSTRACT:

OBJECTIVES: 1. TO REVIEW PERTINENT LITERATURE AND IDENTIFY 'STATE-OF-THE-ART' KNOWLEDGE FOR PARAMETERS AND METHODOLOGIES IMPORTANT TO REHABILITATION AND RECLAMATION OF WESTERN WILDLIFE HABITATS, PARTICULARLY HABITATS DISTURBED BY MINING ACTIVITIES. 2. TO IDENTIFY ONGOING RESEARCH AND DEMONSTRATION PROJECTS AND PROJECTS PLANNED

TO BE ACCOMPLISHED BY AGENCIES, UNIVERSITIES, AND INDUSTRIES IN THE NEXT 3 YEARS. 3. TO IDENTIFY SUBJECTS THAT REQUIRE RESEARCH, AND CURRENT AND PLANNED PROJECTS THAT NEED ADDITIONAL INPUTS IN THE FORM OF FUNDING, CONSULTATION, OR PERSONNEL. 4. TO HOLD A WORKSHOP TO BRING TOGETHER THE MOST KNOWLEDGEABLE PEOPLE OF 'STATE-OF-THE-ART,' CURRENT PROJECTS, AND PLANNED PROJECTS, AND SYNTHESIZE MOST UP-TO-DATE INFORMATION ON THESE SUBJECTS. 5. TO PREPARE A FINAL REPORT INCLUDING A SUMMARY OF THE 'STATE-OF-THE-ART' OF REHABILITATION AND RECLAMATION OF WESTERN WILDLIFE HABITATS, AN ANNOTATED BIBLIOGRAPHY, AND IDENTIFICATION AND DISCUSSION OF PROJECT, STUDY AND RESEARCH PRIORITIES. 6. TO PREPARE AND PUBLISH A HANDBOOK TO GUIDE FIELD PERSONNEL AND OPERATIONAL MANAGERS IN DECISIONS RELATED TO MAXIMIZING WILDLIFE VALUES IN REHABILITATION AND RECLAMATION PROGRAMS.

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00000570
PROJECT TITLE:
PLANT INFORMATION NETWORK
INVESTIGATORS:
DR. ROBERT P. ADAMS (BOTANY & PLANT PATH.) / DR. PHILLIP L. SIMS (RANGE SCI.) / DR. DIETER H. WILKEN (BOTANY & PLANT PATH.)
RESEARCH INSTITUTION:
COLORADO STATE UNIV., DEPT. OF BOTANY & PLANT PATHOLOGY
COLORADO STATE UNIV., DEPT. OF RANGE SCI.
FORT COLLINS, CO 80523
PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
DR. PHILLIP L. DITTBERNER / RM. 206, FED. BLDG.
FT. COLLINS, CO 80521
PRIMARY FUNDING AMOUNT:
117,000
TIME FRAME:
JUNE 15, 1976 TO JUNE 15, 1977
LOCATION:
MT WY CO
ABSTRACT:

OBJECTIVES: 1. TO ADAPT AND IMPLEMENT A PLANT INFORMATION NETWORK (PIN) USING THE BASIC STRUCTURE LOGIC OF THE RAPIR SYSTEM; TO BUILD A DATA BANK FOR ALL OF THE SPECIES OF VASCULAR PLANTS NATIVE OR NATURALIZED TO COLORADO, SOUTHEASTERN MONTANA, AND WYOMING; TO SET UP DESCRIPTORS FOR INFORMATION ON TAXONOMIC, GEOGRAPHIC, ECOLOGIC, BIOLOGIC AND ECONOMIC CATEGORIES. 2. TO REVIEW, SYNTHESIZE, AND INTEGRATE NOMENCLATURAL AND TAXONOMIC INFORMATION ON THE TAXA OF VASCULAR PLANTS IN COLORADO, MONTANA, AND WYOMING AND ENTER THESE DATA INTO THE PIN. ADDITIONAL DATA WILL BE ENTERED INTO THE PIN ON GEOGRAPHIC, ECOLOGIC, BIOLOGIC, AND ECONOMIC INFORMATION AS IT BECOMES AVAILABLE IN THE PROJECT. 3. TO PUBLISH HANDBOOKS FOR EACH OF THE TWO TEST AREAS (COLORADO AND MONTANA/WYOMING), WHICH WILL ACT AS GUIDELINES FOR REVEGETATION EFFORTS IN THOSE AREAS, AND BE IMPORTANT IN ENVIRONMENTAL ASSESSMENT, LAND-USE PLANNING, AND THE LESSENING OF ADVERSE ENVIRONMENTAL IMPACTS DURING MINING, RECLAMATION, AND AFTERWARD.

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00000571
PROJECT TITLE:
RECLAMATION POTENTIAL OF ENERGY DISTURBED LANDS
INVESTIGATORS:
DR. PAUL E. PACKER
RESEARCH INSTITUTION:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
FOREST RESEARCH LABORATORY / 860 NORTH 12TH EAST / LOGAN, UTAH 84321
PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
DR. PHILLIP L. DITTBERNER / RM 206, FED. BLDG. /
FT. COLLINS, CO 80251
SECONDARY SPONSORS:
U.S. EPA
PRIMARY FUNDING AMOUNT:
36,500
SECONDARY FUNDING AMOUNTS:
40,000
TIME FRAME:
JUNE 28, 1976 TO JULY 1, 1977
LOCATION:
MT ND WY UT CO NM AZ
ABSTRACT:

OBJECTIVES: THE MAJOR OBJECTIVE OF THIS RESEARCH IS TO ASSESS, IN A COMMON FORMAT, THE PAST AND ON-GOING RECLAMATION EFFORTS CONSISTING PRINCIPALLY OF REVEGETATION AND SOIL STABILIZATION, CONDUCTED AT ALL OR MOST OF THE MAJOR SURFACE COAL MINES WITHIN THE INTERIOR WEST INCLUDING THOSE IN MONTANA, NORTH DAKOTA, WYOMING, UTAH, COLORADO, NEW MEXICO, AND ARIZONA. THIS ASSESSMENT WILL CONSIST OF A THOROUGH DESCRIPTION OF EACH ACTIVITY USING QUANTITATIVE INFORMATION OBTAINED FROM ON-SITE INSPECTION, THE LITERATURE, AND INTERVIEWS DESCRIBING EACH IMPORTANT VARIABLE. CONCURRENTLY, THE RECLAMATION POTENTIAL OF THE UNMINED AND UNDISTURBED ECOSYSTEM WILL BE DEVELOPED BASED UPON EXISTING INFORMATION AND EXPERTISE. RESULTS OF ACTUAL RECLAMATION WILL BE COMPARED WITH THE POTENTIAL FOR RECLAMATION TO DETERMINE THE RELATIVE ACCURACY OF THE RANKING DEVELOPED TO REFLECT RECLAMATION POTENTIAL. THIS ASSESSMENT WILL THEN EXTRAPOLATE THE RESULTS OF ON-GOING

OR COMPLETED RECLAMATION EFFORTS AND THE METHOD OF REFLECTING RECLAMATION POTENTIAL TO AREAS NOT YET RECLAIMED TO DETERMINE THE APPLICABILITY OF THE RECLAMATION EFFORTS CONDUCTED TO DATE TO THESE UNDISTURBED AREAS. BASED UPON THESE COMPARISONS, THE PURPOSE WILL EXTEND TO DEVELOP DEFINITIONS AND SPECIFIC CRITERIA APPROPRIATE TO DETERMINE WHETHER PROPOSED RECLAMATION IS ATTAINABLE AND ASSURED.

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00000572

PROJECT TITLE:
INVENTORY OF LAND SURFACES MINED PRIOR TO 1976 IN THE WESTERN UNITED STATES AND THEIR RECLAMATION HISTORY

INVESTIGATORS:
DR. MELVIN SCHAMBERGER

RESEARCH INSTITUTION:
NALCO
6216 W. 66TH PLACE / NORTHBROOK, IL 60638

PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
JOHN A. MORRISON / RM. 206, FED. BLDG. / FT. COLLINS, CO

TIME FRAME:
DEC. 1, 1976 TO JULY 31, 1977

LOCATION:
ND SD MT WY CO UT NM NV ID CA OR WA AZ

ABSTRACT:

OBJECTIVES: 1. TO PRODUCE AN ATLAS OF SURFACE-MINED LAND MINED PRIOR TO 1976 IN THE 11 WESTERN UNITED STATES AND NORTH DAKOTA AND SOUTH DAKOTA. 2. TO INCLUDE IN THE ATLAS: MAPS AND SUPPLEMENTAL INFORMATION CONCERNING OWNERSHIP, TYPE OF MINING, SIZE OF EACH DISTURBED AREA, TYPE OF RECLAMATION EFFORT (IF ANY), AND POST-DISTURBANCE LAND USE PRACTICES.

APPROACH: IDENTIFY AND LOCATE ALL SURFACE-MINED LAND AREAS GREATER THAN 10 ACRES AND CATALOG THEM AS TO GEOGRAPHIC LOCATION, OWNERSHIP (SURFACE AND SUBSURFACE), MINING PLAN, WHETHER ORPHANED OR RECLAIMED, SPECIAL CHARACTERISTICS SUCH AS POST-MINING ACTIVITIES, LAND USE, ETC. 2. INFORMATION SHALL BE OBTAINED FROM GOVERNMENT RECORDS, MINING COMPANY RECORDS, OTHER PUBLISHED SOURCES; ONSITE EXAMINATION OF AT LEAST 50 SITES PER STATE IS NECESSARY FOR SITES NOT DESCRIBED IN PUBLISHED INFORMATION. 3. THE SITES WILL BE SHOWN IN AN INDEXED ATLAS CONTAINING MAPS AND THE DESCRIPTIVE INFORMATION.

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00000573
PROJECT TITLE:
WATER RESOURCES OF THE KNIFE RIVER BASIN
PROJECT NUMBER:
REAP 4-01-0
INVESTIGATORS:
MILTON O. LINDVIG
RESEARCH INSTITUTION:
NORTH DAKOTA STATE WATER COMMISSION
BISMARCK, NORTH DAKOTA 58501
COOPERATOR:
NORTH DAKOTA STATE UNIV., WATER RESOURCES RESEARCH INST.
NORTH DAKOTA GEOLOGICAL SURVEY
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
47,000
TIME FRAME:
NOV. 1, 1976 TO OCT. 31, 1977
LOCATION:
ND - KNIFE RIVER BASIN
ABSTRACT:
A DETAILED EVALUATION OF THE WATER RESOURCES OF THE KNIFE RIVER BASIN REQUIRED FOUR PHASES: PRELIMINARY, DEVELOPMENT, VERIFICATION AND FINAL. DURING THIS PRELIMINARY PHASE OF THE PROJECT, ALL APPLICABLE EXISTING DATA, REPORTS, PROGRAMS, STUDIES AND INVESTIGATIONS WILL BE GATHERED, EVALUATED AND ORGANIZED FOR SUBSEQUENT USE. A CONCEPTUAL MODEL OF THE BASIN WILL BE DEVELOPED TO DETERMINE RATIONAL DATA REQUIREMENTS. ANALYSIS AND INTERPRETATION OF THE DATA WILL BE MADE WITH RESPECT TO TEMPORAL AND SPATIAL FREQUENCY. EXISTING MODELS WILL BE UTILIZED TO EVALUATE SUB-MODELS FOR THE ATMOSPHERE, SURFACE, UNSATURATED ZONE AND AQUIFER REGIMES. (REAP)
TYPE OF STUDY:
THIS PROJECT IS IN COOPERATION WITH 'WATER QUALITY OF SOUTHWESTERN NORTH DAKOTA,' (REAP 4-01-2) AND 'GEOLOGY AND HYDROGEOLOGY OF THE KNIFE RIVER BASIN,' (REAP 5-01-1)

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00000574
PROJECT TITLE:
WATER QUALITY OF SOUTHWESTERN NORTH DAKOTA
PROJECT NUMBER:
REAP 4-01-2
INVESTIGATORS:
ROBERT D. KOOB / JOHN OWEN
RESEARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., WATER RESOURCES RESEARCH INST.
FARGO, ND 58102
COOPERATOR:
NORTH DAKOTA STATE WATER COMMISSION
NORTH DAKOTA GEOLOGICAL SURVEY
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
21,600
TIME FRAME:
JULY 9, 1976 TO NOV. 30, 1977
LOCATION:
ND ; KNIFE RIVER BASIN
ABSTRACT:
CHEMICAL ANALYSES OF A SERIES OF 100 SAMPLES SELECTED BY THE NORTH DAKOTA GEOLOGICAL SURVEY FROM GROUNDWATER OF THE KNIFE RIVER BASIN WILL INCLUDE K, NA, MG, MN, CA, FE, F, CL, HCO3, CO3, SO4, PO4, NO3, O18/O16, HARDNESS, ALKALINITY, AND CONDUCTANCE.
IN ADDITION, 44 SAMPLES WILL BE COLLECTED FROM SELECTED RIVER STATIONS IN SOUTHWESTERN NORTH DAKOTA BY DR. JOHN OWEN. THESE SAMPLES WILL BE ANALYZED FOR FE, MN, CD, PB, HG, AS, MO, SE, SO4, F, NH3/N, NO3/N, P, ORGANIC CARBON, HARDNESS, TOTAL ALKALINITY, SPECIFIC CONDUCTANCE, AND TOTAL DISSOLVED SOLIDS. (REAP)
TYPE OF STUDY:
THIS PROJECT WILL DETERMINE THE SAMPLING SCHEDULE AND PROCEDURES IN COOPERATION WITH 'GEOLOGICAL HYDROGEOLOGY OF THE KNIFE RIVER BASIN,' (REAP 5-01-1) AND 'WATER RESOURCES IN THE KNIFE RIVER BASIN,' (REAP 4-01-1)

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00000575
PROJECT TITLE:
GEOLOGY AND HYDROGEOLOGY OF THE KNIFE RIVER BASIN
PROJECT NUMBER:
REAP 5-01-1
INVESTIGATORS:
JOHN BLEUMLE / C.G. CARLSON / G. GROENWALD / STEVE MORAN
RESEARCH INSTITUTION:
NORTH DAKOTA GEOLOGICAL SURVEY
GRAND FORKS, ND 58201
COOPERATOR:
NORTH DAKOTA STATE WATER COMMISSION
NORTH DAKOTA STATE UNIV., WATER RESOURCES RESEARCH INST.
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
132,000

IME FRAME:
MAY 5, 1976 TO NOV. 30, 1977
CATION:
ND - KNIFE RIVER BASIN ; BEULAH, ND ; HAZEN, ND
STRACT:

THIS STUDY IS TO COMPILE EXISTING DATA, GATHER PRIMARY DATA, AND ANALYZE THE COMPILED AND PRIMARY DATA IN THE DISCIPLINES OF GEOLOGY AND GROUNDWATER FOR THE KNIFE RIVER BASIN. SPECIFICALLY, THE GEOLOGY AND GROUNDWATER STUDY WILL PRODUCE SURFACE LITHOLOGY MAPS AT A SCALE OF 1:63,360 FOR THE 15-MINUTE QUADRANGLES OF BEULAH AND HAZEN, IDENTIFY THE GROUNDWATER FLOW SYSTEMS, PRODUCE A GEOLOGIC HAZARDS MAP, AND PRODUCE A LITHOSTRATIGRAPHIC MAP OF THE SUBSURFACE FOR THE QUADRANGLES STUDIED. IN ADDITION, AN 80 SQUARE MILE AREA AROUND BEULAH-HAZEN WILL BE MAPPED AT A SCALE OF 1:24,000. FIVE HUNDRED WATER QUALITY SAMPLES WILL BE DERIVED FROM THE GROUNDWATER. ALL OF THE NORTH DAKOTA DEPARTMENT OF HEALTH CHEMICAL PARAMETERS WILL BE DETERMINED AS WELL AS TRACE ELEMENTS OF INTEREST AND SOME ISOTOPIC PARAMETERS (018/016 RATIOS). (REAP)

PE OF STUDY:

THIS PROJECT IS IN COOPERATION WITH ´WATER QUALITY OF SOUTHWESTERN NORTH DAKOTA,´ (REAP 4-01-2) AND ´WATER RESOURCES OF THE KNIFE RIVER BASIN,´ (REAP 4-01-1)

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000576
OJECT TITLE:
REGIONWIDE EVALUATION OF AVAILABLE HYDROLOGIC DATA: WATER RESOURCE CONSIDERATIONS FOR THE PROPOSED EASTERN MONTANA COAL DEVELOPMENT
VESTIGATORS:
ROBERT R. CURRY
SEARCH INSTITUTION:
UNIV. OF MONTANA, DEPT. OF GEOLOGY
MISSOULA, MT 59801
IMARY SPONSOR:
NATIONAL SCIENCE FOUNDATION, RANN
IMARY FUNDING AMOUNT:
33,850
ME FRAME:
MAY 1, 1975 TO APR. 30, 1976
CATION:
MT - FORT UNION BASIN
STRACT:

THIS PROJECT WILL COLLECT ALL AVAILABLE SURFACE WATER STREAMFLOW QUALITY RECORDS FROM THE NORTHERN GREAT PLAINS COAL REGI AND ADJACENT AREAS OF ALBERTA AND SASKATCHEWAN. THESE DATA A TO BE ANALYZED ON A REGIONAL SCALE WITH CONSIDERATIONS BEING GIVEN TO INTERBASIN AND GROUNDWATER TO SURFACE-WATER TRANSFER TO ASSESS: 1. WHAT WE PRESENTLY KNOW ABOUT WATER QUANTITY ON THE NORTHERN GREAT PLAINS; 2. WHAT ADDITIONAL INFORMATION WE NEED TO KNOW TO ESTABLISH ADEQUATE BASELINE DATA NETWORKS AND TO ASSESS AVAILABILITY OF DEMANDED WATER, AND 3. HOW THE VARIOUS PROPOSED COAL RESOURCE AND ALLIED DEVELOPMENTS WILL IMPACT THE AVAILABLE WATER AND HOW THE AVAILABILITIES OF SUCH WATERS WILL PARTLY CONTROL THE DEVELOPMENTS.

A FINAL OBJECTIVE OF THIS STUDY WILL BE TO DEVELOP REGIONWIDE DATA TO PROVIDE INPUT TO, AND INTERPOLATE BETWEEN, THE AREAS OF MORE INTENSIVE AND EXTENSIVE HYDROLOGIC ANALYSIS. (MEAC)

TYPE OF STUDY:

PART OF ´IMPACT OF COAL DEVELOPMENT IN THE FORT UNION BASIN, MONTANA AND NEIGHBORING STATES,´ SERIAL NO. 00000153, ERIS QUARTERLY REPORT, VOL. 1, NO. 1, NOVEMBER, 1975.

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00000577
PROJECT TITLE:
FLATHEAD DRAINAGE 208 PROJECT
INVESTIGATORS:
PETER VANCE
RESEARCH INSTITUTION:
FLATHEAD DRAINAGE APO
RM. 208, M & M BLDG. / PO BOX 743 / KALISPELL, MT 59901
PRIMARY SPONSOR:
U.S. EPA, REGION VIII
1860 LINCOLN ST / DENVER, CO 80203
PRIMARY FUNDING AMOUNT:
495,000
TIME FRAME:
MT - FLATHEAD CO., LAKE CO.
ABSTRACT:

THE STUDY AREA INCLUDES FLATHEAD AND LAKE COUNTIES, THE NORTH FORK AND SOUTH FORK OF THE FLATHEAD RIVER, FLATHEAD LAKE, AND NUMEROUS OTHER STREAMS AND LAKES. EIGHT MAJOR STUDIES WILL BE CONDUCTED WITH ONE DIRECTLY ENERGY RELATED. THE NORTH FORK FLATHEAD STUDY WILL COLLECT BASELINE DATA ON THE NORTH FORK. WITH IMPENDING COAL MINING IN THE CANADIAN HEADWATERS OF THE NORTH FORK, THIS STUDY WILL BE HELPFUL IN IDENTIFYING ANY FUTURE POLLUTION SOURCES. OIL AND GAS EXPLORATION AND EXTRACTION IS ALSO A POSSIBILITY IN THE NORTH FORK AREA. (MEAC)

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00000578
PROJECT TITLE:
PUMPKIN CREEK STUDY TO ASSESS GROUND-WATER PROBLEMS ASSOCIATED WITH RECLAMATION OF MINED LANDS
PROJECT NUMBER:
MT T-057

INVESTIGATORS:
GEORGE M. PIKE / JEFF STONER / W. R. HOTCHKISS
RESEARCH INSTITUTION:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
BOX 1696 / HELENA, MT 59601
PRIMARY SPONSOR:
U.S. BUREAU OF LAND MANAGEMENT
ROBERT DELK / DENVER FEDERAL CENTER / LAKEWOOD, CO 80225
PRIMARY FUNDING AMOUNT:
FY 77 - 50,000
TIME FRAME:
OCT. 1, 1976 TO CONTINUING
LOCATION:
MT - MONTANA POWDER RIVER BASIN, T3S., R. 49E.
ABSTRACT:

PROBLEM: BEFORE COAL IS PUT UP FOR LEASE THE WATER PROBLEMS THAT MAY BE ASSOCIATED WITH MINING AND RECLAMATION NEED TO BE KNOWN FOR EACH SITE PROPOSED FOR MINING. THE EXTENT AND DEGREE OF THE WATER PROBLEMS WILL BE IMPORTANT FACTORS IN SELECTING THE SITES THAT WILL BE MADE AVAILABLE FOR LEASING.

OBJECTIVE: PROVIDE THE DATA AND INTERPRETATIONS NECESSARY TO DEFINE THE WATER PROBLEMS THAT MAY BE IMPORTANT DURING MINING AND RECLAMATION AND SUGGEST ALTERNATE SOLUTIONS TO THEM. DESIGN A MONITORING SYSTEM TO DEFINE BASELINE CONDITIONS AND DOCUMENT CHANGES IN GROUND WATER FLOW AND QUALITY ASSOCIATED WITH MINING AND RECLAMATION. DEVELOP TECHNIQUES AND PROCEDURES THAT WILL AID IN PERFORMING FUTURE STUDIES OF THIS TYPE.

APPROACH: IN CONJUNCTION WITH USBR, BLM, AND OTHER DIVISIONS OF THE USGS, DRILL TEST HOLES. COMPILE AND INTERPRET GEOLOGIC, HYDROLOGIC, AND GEOPHYSICAL DATA TO DESCRIBE THE HYDROLOGIC SYSTEM AND PREDICT THE PROBLEMS. DEVELOP DIGITAL MODELS TO RELATE CAUSES AND EFFECTS AND TO MAKE QUANTITATIVE PREDICTIONS OF WATER LEVEL CHANGES AS WELL AS CHANGES IN FLOW OF SPRINGS. WRITE A REPORT DESCRIBING THE HYDROLOGIC SYSTEM, PREDICTING PROBLEMS AND MITIGATING MEASURES, AND DESCRIBING THE MONITORING SYSTEM.

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00000579
PROJECT TITLE:
PREDICTION OF THE EFFECTS OF ENERGY DEVELOPMENT ON THE AQUATIC RESOURCES OF TWO UPPER MISSOURI RIVER RESERVOIR ECOSYSTEMS
INVESTIGATORS:
WILLIAM R. NELSON / DANNY B. MARTIN / CHARLES H. WALBURG
RESEARCH INSTITUTION:
U.S. FISH & WILDLIFE SERV., NORTH CENTRAL RESERVOIR INVES.
P. O. BOX 139 / YANKTON, SD 57078
PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
LEE ISCHINGER / ROOM 206, FEDERAL BUILDING / FORT COLLINS / CO 80521
SECONDARY SPONSORS:
U.S. EPA, REGION VIII
PRIMARY FUNDING AMOUNT:
FY 77 - 25,000 / FY 78 - 25,000
SECONDARY FUNDING AMOUNTS:
U.S. EPA FY 77 - 25,000 / FY 78 - 25,000
TIME FRAME:
JUNE 1, 1976 TO MAY 31, 1978
LOCATION:
ND - DUNN AND MERCER COS., LAKE SAKAKAWEA; MT - LITTLE DRY ARM OF THE FORT PECK RESERVOIR, MCCONE CO.
ABSTRACT:

PROPOSED ENERGY DEVELOPMENT PROJECTS IN DUNN AND MERCER COUNTIES IN NORTH DAKOTA AND MCCONE COUNTY IN EASTERN MONTANA WILL REQUIRE LARGE QUANTITIES OF WATER FROM LAKE SAKAKAWEA, AND THE LITTLE DRY ARM OF FORT PECK RESERVOIR. STUDIES ARE BEING CONDUCTED TO OBTAIN BASELINE DATA WITH EMPHASIS ON FISH, FISH SPAWNING HABITAT, BENTHOS, PHYTOPLANKTON, ZOOPLANKTON, AND WATER QUALITY IN THE AREAS OF POTENTIAL IMPACT. THE PURPOSE OF STUDY IS TO DETERMINE THE PROBABLE IMPACT OF WATER WITHDRAWAL ON THE AQUATIC BIOTA OF THESE RESERVOIRS.

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00000580
PROJECT TITLE:
ENERGY RELATED GROUNDWATER MONITORING AND TECHNIQUES DEVELOPMENT
PROJECT NUMBER:
625C/ABH
INVESTIGATORS:
LESLIE G. MCMILLION
RESEARCH INSTITUTION:
U.S. EPA, ENVIRONMENTAL MONITORING & SUPPORT LAB.
P. O. BOX 15027 / LAS VEGAS, NV 89114
PRIMARY SPONSOR:
U.S. EPA
PRIMARY FUNDING AMOUNT:
1,500,000
TIME FRAME:
SEPT., 1976 TO SEPT., 1981
LOCATION:
WY UT - POWDER RIVER BASIN, WY; UINTAH BASIN, UT
ABSTRACT:

OBJECTIVE: TO MONITOR THE CHANGE IN GROUNDWATER QUALITY AS A RESULT OF STRIP COAL MINING AND ASSOCIATED ACTIVITIES SUCH AS MINE MOUTH POWER PLANTS, PIPELINE SLURRY, AND COAL GASIFICATION AND LIQUEFACTION; TO MONITOR THE CHANGE IN GROUNDWATER QUALITY AS A RESULT OF OIL SHALE MINING. RE-

ORTING, AND PRODUCT UP-GRADING.

PPROACH: APPLICATION OF AN EARLIER EPA DEVELOPED MONITORING STRATEGY WILL BE MADE AND ADJUSTED AS NECESSARY TO CCOMMODATE THE PARTICULAR USE. THE ACTUAL MONITORING IS LANNED TO COVER 4 YEARS.

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0581
ECT TITLE:
HEMICAL AND PHYSICAL CHARACTERISTICS OF INFLOW TO THE ONGUE RIVER IN MONTANA
ECT NUMBER:
ROJECT MT75-054
STIGATORS:
ICK HUTCHISON (USGS, BILLINGS)
ARCH INSTITUTION:
.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
ELENA, MT 59601
ARY SPONSOR:
.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
ONALD L. COFFIN / HELENA, MT 59601
ARY FUNDING AMOUNT:
5,400
FRAME:
ULY 1, 1975 TO MARCH, 1976
US:
OMPLETED MARCH, 1976
TION:
T - TONGUE RIVER
RACT:

URING NOVEMBER 1975 THE TONGUE RIVER DAM WAS CLOSED FOR EPAIRS AND THE DISCHARGE OF THE RIVER WAS REDUCED TO NEAR-ECORD LOW FLOW. DISCHARGE OF THE STREAM WAS MAINLY FROM ATER IN THE VALLEY ALLUVIUM AND FROM AQUIFERS IN THE COAL-ICH FORT UNION FORMATION.

ATA COLLECTED FROM THE PROJECT WILL BE USED TO DETERMINE HE AMOUNT AND QUALITY OF GROUND-WATER DISCHARGE TO THE ONGUE RIVER BETWEEN THE DAM, WHICH IS NEAR THE WYOMING-ONTANA BOUNDARY, AND THE MOUTH OF THE RIVER AT MILES CITY. TREAM DISCHARGE AND QUALITY WILL BE CORRELATED WITH AQ-IFERS ALONG THE STREAM WITH THE AID OF AERIAL INFRARED THERMAL) PHOTOGRAPHY AND WATER LEVELS IN WELLS. DATA ILL THEN BE USED TO REFINE PREDICTIVE TECHNIQUES OF ES-IMATING THE POTENTIAL IMPACTS OF ENERGY-FUELS DEVELOPMENT N THE HYDROLOGIC REGIME OF THE TONGUE RIVER VALLEY AND IMILAR VALLEYS. (MEAC)

OF STUDY:

HIS STUDY IS RELATED TO 'EFFECTS OF MINING AND RELATED CTIVITIES ON THE SHALLOW GROUND WATER SYSTEM.' U.S. EPA ERIAL NUMBER 00000100, ERIS QUARTERLY REPORT, VOL.1, NO. 1. OVEMBER, 1975.

REPORTS AND PUBLICATIONS:

FINAL REPORT UNDER REVIEW. AVAILABLE FROM U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV., HELENA, MT 59601

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00000582
PROJECT TITLE:
CHANNEL CHANGES IN THE POWDER RIVER
PROJECT NUMBER:
PROJECT CR75-102
INVESTIGATORS:
ROBERT H. MEADE
RESEARCH INSTITUTION:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
DENVER FEDERAL CENTER / DENVER, CO 80225
PRIMARY SPONSOR:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
PRIMARY FUNDING AMOUNT:
15,000
TIME FRAME:
JUNE 1, 1975 TO CONTINUING
LOCATION:
MT WY - POWDER RIVER
ABSTRACT:

AFTER IT LEAVES THE BIGHORN MOUNTAINS, THE POWDER RIVER FLOWS IN AN ALLUVIAL CHANNEL. LIKE OTHER ALLUVIAL CHANNELS, THAT OF THE POWDER RIVER IS CONSTANTLY SHIFTING BY EROSION, LATERAL ACCRETION, AND OCCASIONAL CUTTING OFF OF BENDS. AS OF NOW, THE CHANNEL OF THE POWDER RIVER AND THE RATES AT WHICH IT SHIFTS HAVE BEEN AFFECTED VERY LITTLE BY HUMAN ACTIVITIES.

RATES OF CHANNEL MIGRATION WILL BE MEASURED IN THE 170-KILOMETRE REACH OF THE POWDER RIVER BETWEEN ARVADA, WYOMING, AND BROADUS, MONTANA. THIS REACH WAS SELECTED BECAUSE SEDIMENT LOADS ARE SAMPLED DAILY AT ARVADA, AT MOORHEAD, MT AND AT BROADUS. ANOTHER REASON FOR THE SELECTION OF THIS REACH IS THAT IT CONTAINS THE SITE OF A PROPOSED RESERVOIR TO STORE WATER FOR ENERGY DEVELOPMENT. IF THE RESERVOIR IS BUILT, ITS EFFECTS ON THE RIVER CHANNEL CAN BE ASSESSED FROM THE AVAILABLE DATA.

FIELDWORK CONDUCTED TO DATE HAS BEEN ON THE RIVER BELOW MOORHEAD. IT CONSISTED OF SURVEYING AND MARKING CROSS SECTIONS OF THE RIVER THAT WILL BE RESURVEYED IN SUBSEQUENT YEARS TO MEASURE THE RATES AT WHICH THE CHANNEL SHIFTS.

AERIAL PHOTOGRAPHS OF THIS AREA WILL BE COMPARED TO MEASURE CHANGES OVER TIME AS A FUTURE RESEARCH TASK. (MEAC)

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00000583
PROJECT TITLE:
ENVIRONMENTAL STUDIES OF BLACK THUNDER AND COAL CREEK LEASES
PROJECT NUMBER:
6534
INVESTIGATORS:
PAUL A. RECHARD
RESEARCH INSTITUTION:
UNIV. OF WYOMING, WATER RESOURCES RESEARCH INST.
P.O. BOX 3067 / UNIVERSITY STATION / LARAMIE, WY 82071
PRIMARY SPONSOR:
ATLANTIC-RICHFIELD CO.
1500 SECURITY LIFE BLDG / 1616 GLENARM / DENVER, CO 80202
PRIMARY FUNDING AMOUNT:
4,000
TIME FRAME:
OCT. 1, 1975 TO SEPT. 30, 1978
LOCATION:
WY - BLACK THUNDER AND COAL CREEK
ABSTRACT:
PURPOSE: TO ADAPT THE HYDROLOGICAL MODEL (FORTRAN IV) CURRENTLY BEING DEVELOPED AT THE UNIVERSITY OF WYOMING TO PREDICT THE FLOW OF WATER INTO A SURFACE MINE PIT. THE PROGRAM SHALL BE CAPABLE OF PREDICTING ANNUAL INFLOW RESULTING FROM DIFFERENT BOUNDARY CONDITIONS TO SIMULATE MINING CONDITIONS AND TAKE INTO CONSIDERATION BACKFILLED AREAS AS WELL AS CUTS LEFT OPEN FOR HAUL ROADS.

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00000584
PROJECT TITLE:
CONDUCT WATER QUALITY DETERMINATIONS FOR 208 MANAGEMENT PLAN
PROJECT NUMBER:
6752
INVESTIGATORS:
WILLIAM MCTERNAN
RESEARCH INSTITUTION:
UNIV. OF WYOMING, WATER RESOURCES RESEARCH INST.
P.O. BOX 3067 / UNIVERSITY STATION / LARAMIE, WY 82071
PRIMARY SPONSOR:
POWDER RIVER APO
SHERIDAN, WY
PRIMARY FUNDING AMOUNT:
54,960
TIME FRAME:
JAN. 1, 1976 TO JULY 1, 1977
LOCATION:
WY - CAMPBELL CO., JOHNSON CO., SHERIDAN CO.
ABSTRACT:
PURPOSE: 1. TO DELINEATE THE POINT SOURCE POLLUTION IN JOHNSON, CAMPBELL, AND SHERIDAN COUNTIES; 2. ANALYSIS OF ´TARGET´ NON-POINT POLLUTION SOURCES (INCLUDING EVALUATION OF MINING AND FORESTRY PRACTICES, IDENTIFICATION OF RECREATION ORIENTED POLLUTION SOURCES, ETC.); 3. IMPLEMENTATION OF A COMPUTER-BASED SORTING AND ANALYZING SYSTEM; 4. FORMULATION OF WATER QUALITY MANAGEMENT PLAN STRUCTURED TO COMPLY WITH 208 GOALS. (GOALS 1-3 ARE SECONDARY TO 4)

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00000585
PROJECT TITLE:
GEOLOGY AND SUBSURFACE HYDROLOGY - ´PRELIMINARY ENVIROMENTAL ASSESSMENT REPORT´
PROJECT NUMBER:
4852
INVESTIGATORS:
MASON H. SOMERVILLE / DR. JOHN CHERRY / DR. STEVEN MORAN / DR. PETER FRITZ / JAMES ULMER / WILLIAM PETERSON
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIVERSITY STATION / GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NATURAL GAS PIPELINE CO. OF AMERICA
122 S. MICHIGAN AVE. / CHICAGO, IL 60603
TIME FRAME:
MARCH, 1975 TO SEPT., 1976
LOCATION:
ND - DUNN COUNTY
ABSTRACT:
OBJECTIVE: THE OBJECTIVE IS TO ASSESS THE PROBABLE EFFECTS THAT THE LOCATION OF A 250 MILLION CUBIC FOOT PER DAY LURGI COAL GASIFICATION FACILITY IN DUNN COUNTY, NORTH DAKOTA WILL HAVE ON THE GEOLOGY AND SUBSURFACE HYDROLOGY OF THE AREA.
METHODOLOGY: THE STRATIGRAPHY AND LITHOLOGIC CHARACTERISTICS THAT WILL AFFECT THE HYDROLOGY AND POSSIBLE RECLAMATION PROCEDURES WERE SUMMARIZED. WHAT IS NOW KNOWN OR CAN BE REASONABLY PREDICTED ABOUT PRESENT GROUNDWATER FLOW AND CHEMISTRY WAS SUMMARIZED. FINALLY AN EVALUATION OF THE POSSIBLE RANGE OF CHANGES IS MADE, BASED UPON THE IMPACT OF LOCATING THE PLANT IN THE AREA. FROM ENGINEERING SPECIFICATIONS.
APPLICATION OF WORK: CAN BE APPLIED TO EVALUATING THE EFFECTS THAT LOCATING A LURGI COAL GASIFICATION PLANT WILL HAVE ON THE GEOLOGY AND SUBSURFACE HYDROLOGY OF

AP)

IMINARY ENVIRONMENTAL ASSESSMENT REPORT
´ NATURAL GAS PIPELINE CO. OF AMERICA.

HYDROLOGY - ´PRELIMINARY ENVIRONMENTAL
PORT´

RVILLE / DR. EARL S. MASON
TION:
DAKOTA, ENG. EXP. STATION
ATION / GRAND FORKS, ND 58202

IPLINE CO. OF AMERICA
AN AVE. / CHICAGO, IL 60603

) SEPT., 1976

REEK BASIN, KNIFE RIVER BASIN

HE OBJECTIVE IS TO EVALUATE THE EFFECTS OF
MILLION STANDARD CUBIC FOOT PER DAY
SIFICATION FACILITY IN DUNN COUNTY, NORTH
SURFACE WATER SYSTEM AFFECTED.
THE DATA CONCERNING STREAM FLOW, FLOOD
QUENCY, RUNOFF, RAINFALL DEPTH-FREQUENCY, AND
WERE OBTAINED FROM EXISTING REPORTS AND THE
CATING THE FACILITY IN THE AREA BEING IN-

F WORK: USED TO DETERMINE THE EFFECTS ON
LOGY AND PROVIDE THE DECISION-MAKER WITH
F PERTINENT DATA. (REAP)

IMINARY ENVIRONMENTAL ASSESSMENT REPORT
´ NATURAL GAS PIPELINE CO. OF AMERICA.

- ´PRELIMINARY ENVIRONMENTAL ASSESSMENT

RVILLE / PROF. JOE FOSSUM

RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIVERSITY STATION / GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NATURAL GAS PIPELINE CO. OF AMERICA
122 S. MICHIGAN AVE. / CHICAGO, IL 60603
TIME FRAME:
MARCH, 1975 TO SEPT., 1976
LOCATION:
ND - DUNN COUNTY
ABSTRACT:
OBJECTIVE: THE OBJECTIVE IS TO FULLY ASSESS AND EVALUATE THE ENVIRONMENTAL IMPACT THE LOCATION OF A 250 MILLION STANDARD CUBIC FOOT PER DAY LURGI COAL GASIFICATION PLANT IN DUNN COUNTY, NORTH DAKOTA WILL HAVE ON GROUND AND SURFACE WATER QUALITY.
METHODOLOGY: THE EXISTING GROUND AND SURFACE WATER QUALITY WAS STUDIED AND BASED ON ENGINEERING ESTIMATES OF DISCHARGES THE EFFECTS OF PLANT LOCATION ARE BEING EVALUATED.
APPLICATION OF WORK: USED TO ASSESS THE EFFECTS THAT DISCHARGES FROM THE FACILITY WILL HAVE ON GROUND AND SURFACE WATER. (REAP)
TYPE OF STUDY:
PART OF ´PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT PROJECT 4852,´ NATURAL GAS PIPELINE CO. OF AMERICA.

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00000588
PROJECT TITLE:
NORTH DAKOTA SUBPROJECT OF ´A COOPERATIVE PROGRAM TO EVALUATE SURFACE AND GROUNDWATER PROBLEMS ASSOCIATED WITH POTENTIAL STRIP MINE SITES´
INVESTIGATORS:
STEPHAN MORAN / R.D. KOOB
RESEARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., WATER RESOURCES RESEARCH INST.
FARGO, ND 58102
PRIMARY SPONSOR:
U.S. EPA, CINCINNATI NAT. ENV. RESEARCH CENTER
CINCINNATI, OH 45268
PRIMARY FUNDING AMOUNT:
531,000
TIME FRAME:
JULY, 1975 TO JUNE, 1978
LOCATION:
ND - MCLEAN CO., UNDERWOOD CO.
ABSTRACT:
OBJECTIVE: TO IDENTIFY THE POSSIBLE IMPACTS OF COAL MINING AND DEVELOPMENT IN THE UPPER GREAT PLAINS ON THE SURFACE AND GROUNDWATER SYSTEMS OF THE SURROUNDING AREA. THIS SUBPROJECT

IS CONCERNED WITH THE COLLECTION OF SUFFICIENT DATA TO TEST AND DEVELOP WATERSHED MANAGEMENT MODELS WHICH WILL BE USED TO MEASURE OR PREDICT IMPACTS OF COAL DEVELOPMENT. THE GOAL OF THIS STUDY IS TO OBTAIN AN EQUATION OF BALANCE FOR ALL WATER INFLOW AND OUTFLOW IN THE STUDY SITE.

METHODOLOGY: ALL EXISTING HYDROLOGIC GAUGING STATIONS IN OR NEAR THE CHOSEN SITES WILL BE USED AND SUPPLEMENTED AS NECESSARY. IN THE FIRST YEAR THE HYDROLOGIC BALANCE OF THE PROPOSED MINE AREA WILL BE INVESTIGATED AND MODELS WILL BE DEVELOPED AND SELECTED. STREAMFLOW GAUGING STATIONS, WHERE NOT EXISTING, WILL BE ESTABLISHED ON CHANNELS ABOVE AND BELOW THE PROPOSED MINING AREAS, AND ON A CONTROL CHANNEL WHICH THOUGH NEARBY, WILL NOT BE AFFECTED BY THE MINING. RECORDING PRECIPITATION GAUGES WILL BE INSTALLED ON THE WATERSHEDS IN ADEQUATE DENSITY TO DEFINE THE PRECIPITATION INPUT. CLASS A TYPE EVAPORATION PANS WITH AUTOMATIC REFILL FOR WEEKLY OPERATION AND SOIL MOISTURE TUBES FOR USE WITH A NEUTRON MOISTURE PROBE WILL BE PLACED TO MEASURE QUANTITIES OF INFILTRATION. THE QUALITY OF SURFACE WATER IS TO BE SAMPLED MONTHLY UNTIL A PATTERN IS DETERMINED TO ALLOW QUARTERLY SAMPLING.

APPLICATION OF WORK: WILL RESULT IN MODELS USEFUL IN PREDICTING THE IMPACTS OF COAL DEVELOPMENT. IT WILL PROVIDE RECOMMENDATIONS AS TO HOW THE WATER HANDLING CAPABILITY OF THE MINED AREA MAY BE RETURNED TO EQUAL OR ABOVE THE BEFORE MINING LEVEL.

T E OF STUDY:

PART OF ´A COOPERATIVE PROGRAM TO EVALUATE SURFACE AND GROUNDWATER PROBLEMS ASSOCIATED WITH POTENTIAL STRIP MINE SITES.´ SERIAL NUMBER 00000122, ERIS QUARTERLY REPORT. VOL. 1. NO. 1. NOVEMBER, 1975.

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0 00589

P JECT TITLE:

WATER FOR ENERGY IN THE NORTHERN GREAT PLAINS AREA WITH EMPHASIS ON THE YELLOWSTONE RIVER BASIN

I ESTIGATORS:

KENNETH O. KAUFFMAN - U.S. BUREAU OF RECLAMATION
JOE L. POOLE - U.S. GEOLOGICAL SURVEY
JOHN W. HEINTZ - U.S. DEPT. OF INTERIOR. OFFICE OF WATER RESEARCH & TECH.
KARL STARCH - U.S. BUREAU OF MINES
ALBERT G. BALDWIN - U.S. BUREAU OF OUTDOOR RECREATION
GLEN D. FULCHER - U.S. BUREAU OF LAND MANAGEMENT
EARL T. WALKER - U.S. FISH & WILDLIFE SERV.
JOHN R. LITTLE, U.S. OFFICE OF THE SOLICITOR
STANTON J. WARE - U.S. DEPT. OF INTERIOR. OFFICE OF WATER RESEARCH AND TECH.
GEORGE S. JENNINGS - U.S. BUREAU OF INDIAN AFFAIRS

RE EARCH INSTITUTION:

U.S. DEPT. OF INTERIOR. WATER FOR ENERGY MANAGEMENT TEAM
DENVER FEDERAL CENTER / DENVER, CO 80225

PRIMARY SPONSOR:

U.S. DEPT. OF INTERIOR

TIME FRAME:

SEPT., 1974 TO JAN. 31, 1975

LOCATION:

MT ND SD WY

ABSTRACT:

THE NORTHERN GREAT PLAINS AREA, ENCOMPASSING 63 COUNTIES IN WYOMING, MONTANA, NORTH DAKOTA, AND SOUTH DAKOTA, IS GENERALLY WITHIN THE UPPER MISSOURI RIVER BASIN. THE AREA, WITH MAJOR DEPOSITS OF STRIPPABLE COAL, IS EXPERIENCING NATIONAL INTEREST RELATIVE TO THE PRESENT ENERGY PROBLEMS. THE CONVERSION OF COAL TO ELECTRICITY OR SYNTHETIC GAS IS INTRICATELY LINKED TO WATER SUPPLIES. NUMEROUS INVESTIGATIONS AND STUDIES HAVE BEEN DONE BY STATE, FEDERAL, AND PRIVATE ORGANIZATIONS. ONE OF THE MORE ENCOMPASSING STUDIES IS THE NORTHERN GREAT PLAINS RESOURCE PROGRAM, A STATE-FEDERAL EFFORT TO DEVELOP INFORMATION REGARDING RESOURCES AND RESOURCE NEEDS FOR THE AREA. THAT STUDY HAS BEEN THE BASIS FOR MUCH OF THE WATER SUPPLY INFORMATION FOR THE PRESENTATIONS IN THIS REPORT. THIS ANALYSIS HAS BEEN PREPARED TO SERVE AS AN IMPORTANT GUIDELINE FOR DETERMINING FUTURE POLICY ON ENERGY WATER ISSUES. IT HAS BEEN PREPARED BY THE DEPARTMENT OF INTERIOR´S DENVER-BASED MANAGEMENT TEAM WHICH WAS ORGANIZED UNDER THE ASSISTANT SECRETARY FOR LAND AND WATER RESOURCES. THE BASIC PURPOSE OF THE MANAGEMENT TEAM IS TO PROVIDE FACTUAL BASIS FOR SECRETARIAL DECISIONS ON WATER ASPECTS OF ENERGY DEVELOPMENT. SPECIFICALLY, IT IS CHARGED WITH MAKING CONCISE PRESENTATIONS OF INFORMATION AND DATA ON THE ALTERNATIVE WATER SUPPLIES FOR SPECIFIC ENERGY DEVELOPMENT SITES. ENVIRONMENTAL ASPECTS, INTERSTATE WATER COMPACTS, STATE WATER RIGHTS, AND OTHER PERTINENT CONDITIONS ARE ALL TO BE CONSIDERED IN THE TEAM´S EFFORTS. THIS INFORMATION WILL ASSIST MANAGEMENT OFFICIALS IN MAKING DECISIONS ON SITE-SPECIFIC ENERGY DEVELOPMENT.

REPORTS AND PUBLICATIONS:

REPORT ON WATER FOR ENERGY IN THE NORTHERN GREAT PLAINS AREA WITH EMPHASIS ON THE YELLOWSTONE RIVER BASIN. U.S. DEPT. OF INTERIOR, WATER FOR ENERGY MANAGEMENT TEAM. JANUARY, 1975.

AREA. (REAP)
OF STUDY:
RT OF "PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT
OJECT 4852," NATURAL GAS PIPELINE CO. OF AMERICA.

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586
CT TITLE:
RFACE WATER HYDROLOGY - "PRELIMINARY ENVIRONMENTAL
SESSMENT REPORT"
CT NUMBER:
52
TIGATORS:
SON H. SOMERVILLE / DR. EARL S. MASON
RCH INSTITUTION:
IV. OF NORTH DAKOTA, ENG. EXP. STATION
IVERSITY STATION / GRAND FORKS, ND 58202
RY SPONSOR:
TURAL GAS PIPLINE CO. OF AMERICA
2 S. MICHIGAN AVE. / CHICAGO, IL 60603
FRAME:
RCH, 1975 TO SEPT., 1976
ION:
- SPRING CREEK BASIN, KNIFE RIVER BASIN
ACT:
JECTIVE: THE OBJECTIVE IS TO EVALUATE THE EFFECTS OF
CATING A 250 MILLION STANDARD CUBIC FOOT PER DAY
RGI COAL GASIFICATION FACILITY IN DUNN COUNTY, NORTH
KOTA ON THE SURFACE WATER SYSTEM AFFECTED.
THODOLOGY: THE DATA CONCERNING STREAM FLOW, FLOOD
GNITUDE-FREQUENCY, RUNOFF, RAINFALL DEPTH-FREQUENCY, AND
DIMENTATION WERE OBTAINED FROM EXISTING REPORTS AND THE
FECTS OF LOCATING THE FACILITY IN THE AREA BEING IN-
STIGATED.
PLICATION OF WORK: USED TO DETERMINE THE EFFECTS ON
RFACE HYDROLOGY AND PROVIDE THE DECISION-MAKER WITH
ANALYSIS OF PERTINENT DATA. (REAP)
OF STUDY:
RT OF "PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT
OJECT 4852," NATURAL GAS PIPELINE CO. OF AMERICA.

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587
CT TITLE:
TER QUALITY - "PRELIMINARY ENVIRONMENTAL ASSESSMENT
PORT"
CT NUMBER:
52
TIGATORS:
SON H. SOMERVILLE / PROF. JOE FOSSUM

RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIVERSITY STATION / GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NATURAL GAS PIPELINE CO. OF AMERICA
122 S. MICHIGAN AVE. / CHICAGO, IL 60603
TIME FRAME:
MARCH, 1975 TO SEPT., 1976
LOCATION:
ND - DUNN COUNTY
ABSTRACT:
OBJECTIVE: THE OBJECTIVE IS TO FULLY ASSESS AND EVALUATE
THE ENVIRONMENTAL IMPACT THE LOCATION OF A 250 MILLION
STANDARD CUBIC FOOT PER DAY LURGI COAL GASIFICATION
PLANT IN DUNN COUNTY, NORTH DAKOTA WILL HAVE ON GROUND
AND SURFACE WATER QUALITY.
METHODOLOGY: THE EXISTING GROUND AND SURFACE WATER
QUALITY WAS STUDIED AND BASED ON ENGINEERING ESTIMATES
OF DISCHARGES THE EFFECTS OF PLANT LOCATION ARE BEING
EVALUATED.
APPLICATION OF WORK: USED TO ASSESS THE EFFECTS THAT
DISCHARGES FROM THE FACILITY WILL HAVE ON GROUND AND
SURFACE WATER. (REAP)
TYPE OF STUDY:
PART OF "PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT
PROJECT 4852," NATURAL GAS PIPELINE CO. OF AMERICA.

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GOCC0588
PROJECT TITLE:
NORTH DAKOTA SUBPROJECT OF "A COOPERATIVE PROGRAM TO EVALUATE
SURFACE AND GROUNDWATER PROBLEMS ASSOCIATED WITH POTENTIAL
STRIP MINE SITES"
INVESTIGATORS:
STEPHAN MORAN / R.D. KOOB
RESEARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., WATER RESOURCES RESEARCH INST.
FARGO, ND 58102
PRIMARY SPONSOR:
U.S. EPA, CINCINNATI NAT. ENV. RESEARCH CENTER
CINCINNATI, OH 45268
PRIMARY FUNDING AMOUNT:
531,000
TIME FRAME:
JULY, 1975 TO JUNE, 1976
LOCATION:
ND - MCLEAN CO., UNDERWOOD CO.
ABSTRACT:
OBJECTIVE: TO IDENTIFY THE POSSIBLE IMPACTS OF COAL MINING
AND DEVELOPMENT IN THE UPPER GREAT PLAINS ON THE SURFACE AND
GROUNDWATER SYSTEMS OF THE SURROUNDING AREA. THIS SUBPROJECT

IS CONCERNED WITH THE COLLECTION OF SUFFICIENT DATA TO TEST AND DEVELOP WATERSHED MANAGEMENT MODELS WHICH WILL BE USED TO MEASURE OR PREDICT IMPACTS OF COAL DEVELOPMENT. THE GOAL OF THIS STUDY IS TO OBTAIN AN EQUATION OF BALANCE FOR ALL WATER INFLOW AND OUTFLOW IN THE STUDY SITE.

METHODOLOGY: ALL EXISTING HYDROLOGIC GAUGING STATIONS IN OR NEAR THE CHOSEN SITES WILL BE USED AND SUPPLEMENTED AS NECESSARY. IN THE FIRST YEAR THE HYDROLOGIC BALANCE OF THE PROPOSED MINE AREA WILL BE INVESTIGATED AND MODELS WILL BE DEVELOPED AND SELECTED. STREAMFLOW GAUGING STATIONS, WHERE NOT EXISTING, WILL BE ESTABLISHED ON CHANNELS ABOVE AND BELOW THE PROPOSED MINING AREAS, AND ON A CONTROL CHANNEL WHICH THOUGH NEARBY, WILL NOT BE AFFECTED BY THE MINING. RECORDING PRECIPITATION GAUGES WILL BE INSTALLED ON THE WATERSHEDS IN ADEQUATE DENSITY TO DEFINE THE PRECIPITATION INPUT. CLASS A TYPE EVAPORATION PANS WITH AUTOMATIC REFILL FOR WEEKLY OPERATION AND SOIL MOISTURE TUBES FOR USE WITH A NEUTRON MOISTURE PROBE WILL BE PLACED TO MEASURE QUANTITIES OF INFILTRATION. THE QUALITY OF SURFACE WATER IS TO BE SAMPLED MONTHLY UNTIL A PATTERN IS DETERMINED TO ALLOW QUARTERLY SAMPLING.

APPLICATION OF WORK: WILL RESULT IN MODELS USEFUL IN PREDICTING THE IMPACTS OF COAL DEVELOPMENT. IT WILL PROVIDE RECOMMENDATIONS AS TO HOW THE WATER HANDLING CAPABILITY OF THE MINED AREA MAY BE RETURNED TO EQUAL OR ABOVE THE BEFORE MINING LEVEL.

TYPE OF STUDY:

PART OF ´A COOPERATIVE PROGRAM TO EVALUATE SURFACE AND GROUNDWATER PROBLEMS ASSOCIATED WITH POTENTIAL STRIP MINE SITES.´ SERIAL NUMBER 00000122. ERIS QUARTERLY REPORT. VOL. 1, NO. 1, NOVEMBER, 1975.

*****

00000589

PROJECT TITLE:

WATER FOR ENERGY IN THE NORTHERN GREAT PLAINS AREA WITH EMPHASIS ON THE YELLOWSTONE RIVER BASIN

INVESTIGATORS:

KENNETH O. KAUFFMAN - U.S. BUREAU OF RECLAMATION
JOE L. POOLE - U.S. GEOLOGICAL SURVEY
JOHN W. HEINTZ - U.S. DEPT. OF INTERIOR, OFFICE OF WATER RESEARCH & TECH.
KARL STARCH - U.S. BUREAU OF MINES
ALBERT G. BALDWIN - U.S. BUREAU OF OUTDOOR RECREATION
GLEN D. FULCHER - U.S. BUREAU OF LAND MANAGEMENT
EARL T. WALKER - U.S. FISH & WILDLIFE SERV.
JOHN R. LITTLE, U.S. OFFICE OF THE SOLICITOR
STANTON J. WARE - U.S. DEPT. OF INTERIOR, OFFICE OF WATER RESEARCH AND TECH.
GEORGE S. JENNINGS - U.S. BUREAU OF INDIAN AFFAIRS

RESEARCH INSTITUTION:

U.S. DEPT. OF INTERIOR, WATER FOR ENERGY MANAGEMENT TEAM
DENVER FEDERAL CENTER / DENVER, CO 80225

PRIMARY SPONSOR:

U.S. DEPT. OF INTERIOR

TIME FRAME:

SEPT., 1974 TO JAN. 31, 1975

LOCATION:

MT ND SD WY

ABSTRACT:

THE NORTHERN GREAT PLAINS AREA, ENCOMPASSING 63 COUNTIES IN WYOMING, MONTANA, NORTH DAKOTA, AND SOUTH DAKOTA, IS GENERALLY WITHIN THE UPPER MISSOURI RIVER BASIN. THE AREA, WITH MAJOR DEPOSITS OF STRIPPABLE COAL, IS EXPERIENCING NATIONAL INTEREST RELATIVE TO THE PRESENT ENERGY PROBLEMS. THE CONVERSION OF COAL TO ELECTRICITY OR SYNTHETIC GAS IS INTRICATELY LINKED TO WATER SUPPLIES. NUMEROUS INVESTIGATIONS AND STUDIES HAVE BEEN DONE BY STATE, FEDERAL, AND PRIVATE ORGANIZATIONS. ONE OF THE MORE ENCOMPASSING STUDIES IS THE NORTHERN GREAT PLAINS RESOURCE PROGRAM, A STATE-FEDERAL EFFORT TO DEVELOP INFORMATION REGARDING RESOURCES AND RESOURCE NEEDS FOR THE AREA. THAT STUDY HAS BEEN THE BASIS FOR MUCH OF THE WATER SUPPLY INFORMATION FOR THE PRESENTATIONS IN THIS REPORT. THIS ANALYSIS HAS BEEN PREPARED TO SERVE AS AN IMPORTANT GUIDELINE FOR DETERMINING FUTURE POLICY ON ENERGY WATER ISSUES. IT HAS BEEN PREPARED BY THE DEPARTMENT OF INTERIOR´S DENVER-BASED MANAGEMENT TEAM WHICH WAS ORGANIZED UNDER THE ASSISTANT SECRETARY FOR LAND AND WATER RESOURCES. THE BASIC PURPOSE OF THE MANAGEMENT TEAM IS TO PROVIDE FACTUAL BASIS FOR SECRETARIAL DECISIONS ON WATER ASPECTS OF ENERGY DEVELOPMENT. SPECIFICALLY, IT IS CHARGED WITH MAKING CONCISE PRESENTATIONS OF INFORMATION AND DATA ON THE ALTERNATIVE WATER SUPPLIES FOR SPECIFIC ENERGY DEVELOPMENT SITES. ENVIRONMENTAL ASPECTS, INTERSTATE WATER COMPACTS, STATE WATER RIGHTS, AND OTHER PERTINENT CONDITIONS ARE ALL TO BE CONSIDERED IN THE TEAM´S EFFORTS. THIS INFORMATION WILL ASSIST MANAGEMENT OFFICIALS IN MAKING DECISIONS ON SITE-SPECIFIC ENERGY DEVELOPMENT.

REPORTS AND PUBLICATIONS:

REPORT ON WATER FOR ENERGY IN THE NORTHERN GREAT PLAINS AREA WITH EMPHASIS ON THE YELLOWSTONE RIVER BASIN. U.S. DEPT. OF INTERIOR, WATER FOR ENERGY MANAGEMENT TEAM. JANUARY, 1975.

•••••

590
CT TITLE:
STUDY OF THE DISTRIBUTION OF FISH SPECIES IN THE LITTLE
SSOURI, KNIFE, HEART, AND CANNONBALL RIVER BASINS
CT NUMBER:
AP 6-C1-1
TIGATORS:
HN B. OWEN
RCH INSTITUTION:
IV. OF NORTH DAKOTA, DEPT. OF BIOLOGY
AND FORKS, ND 58202
RY SPONSOR:
RTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
RY FUNDING AMOUNT:
,000
FRAME:
. 19, 1976 TO NOV. 30, 1977
ION:
- LITTLE MISSOURI RIVER BASIN ; KNIFE RIVER BASIN
ART RIVER BASIN ; CANNONBALL RIVER BASIN
ACT:
STUDY OF THE DISTRIBUTION OF FISHES IN SOUTHWESTERN NORTH
KOTA IS URGENTLY NEEDED FOR BOTH SCIENTIFIC AND PRACTI-
. REASONS.
OM THE SCIENTIFIC VIEWPOINT THERE ARE NO COMPREHENSIVE
BLISHED REPORTS ON THE FISH FAUNA OF THE KNIFE, HEART OR
NNONBALL RIVERS. THERE MAY BE UNKNOWN, RARE OR ENDANGERED
CIES IN THESE RIVERS. THERE HAS BEEN ONLY ONE ICHTHYO-
ICAL STUDY OF THE FISHES OF THE LITTLE MISSOURI RIVER
RSONIUS AND EDDY, 1955) AND SEVERAL FISHERIES MANAGE-
T STUDIES IN THE LITTLE MISSOURI RIVER.
PRACTICAL REASONS FOR A STUDY OF THE FISHES IN THESE
INS AT THIS TIME IS EVEN MORE PRESSING.
PROPOSED DEVELOPMENT OF THE AREA FOR STRIP MINING AND
OCIATED PROJECTS THREATENS TO AFFECT WATER QUALITY,
EAM FLOW PATTERNS AND FISH FAUNA. STRIP MINING, STREAM
ERATING PLANTS AND COAL GASIFICATION PLANTS WILL USE
ER, PRODUCE HEATED EFFLUENTS AND AFFECT WATER QUALITY
MANY WAYS. WE NEED TO KNOW THE BASIC DISTRIBUTION OF
HES (AND OTHER FAUNA AND FLORA) IN THIS AREA BEFORE ANY
THER DEVELOPMENT IS MADE. WE ALSO NEED TO KNOW AS MUCH
POSSIBLE ABOUT THE ECOLOGICAL FACTORS CONTROLLING
TRIBUTION OF FISHES BEFORE ANY FURTHER ALTERATIONS
MADE IN THE ENVIRONMENT. IT IS ESSENTIAL THAT WE HAVE
D BASELINE DATA IN ORDER TO PREDICT THE ECOLOGICAL IM-
TS ON FISHES OF PROJECTS NOW BEING PLANNED.
DISTRIBUTION OF NATURAL POPULATIONS OF FISH IS ALSO
ENTIAL IN MANAGEMENT OF SPORT AND COMMERCIAL SPECIES
IN THIS PART OF NORTH DAKOTA. THE NORTH DAKOTA DEPARTMENT OF GAME AND FISH HAVE A CONTINUING NEED FOR INFORMATION ON POPULATIONS OF ALL SPECIES OF FISHES. (REAP)

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00000591
PROJECT TITLE:
VERTEBRATES OF SOUTHWESTERN NORTH DAKOTA: AMPHIBIANS. REPTILES, BIRDS, MAMMALS
PROJECT NUMBER:
REAP 6-C1-2
INVESTIGATORS:
ROBERT W. SEABLOOM
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, INST. FOR ECOLOGICAL STUDIES
GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
55,000
TIME FRAME:
APR. 19, 1976 TO DEC. 31, 1977
LOCATION:
ND - MCLEAN CO., ND ; MISSOURI RIVER BASIN
ABSTRACT:

THE PURPOSE OF THIS STUDY IS TO SURVEY POPULATIONS OF REPRESENTATIVE TERRESTRIAL VERTEBRATES IN THAT PORTION OF THE MISSOURI SLOPE SOUTH AND WEST OF THE MISSOURI RIVER, AND MCLEAN COUNTY IN NORTH DAKOTA. DATA WILL BE TABULATED RELATIVE TO SPECIES OCCURRENCE, AND ABUNDANCE BY MAJOR HABITAT TYPE AND GEOGRAPHIC AREA. HABITATS TO BE SAMPLED WILL INCLUDE RIVER BOTTOM, HARDWOOD DRAW. UPLAND CONIFER, UPLAND GRASSLAND, ROLLING GRASSLAND, TERRACES. UPLAND BREAKS, ROCKLAND AND HILLY SCORIA. RIVER BREAKS, AND WETLANDS. DATA COLLECTED WILL INCLUDE THAT FROM POPULATION SAMPLING, EXISTING LITERATURE AND UNPUBLISHED REPORTS. AND INTERVIEWS.

BREEDING BIRD POPULATIONS WILL BE SAMPLED BY TOTAL COUNTS ON APPROXIMATELY 75 1/4-SECTION-QUADRATS. ADDITIONAL DATA ON GAME BIRDS ENDANGERED AND SPECIAL INTEREST SPECIES WILL BE OBTAINED FROM COOPERATING AGENCIES. DATA ON MIGRATORY SPECIES WILL BE OBTAINED FROM THE EXISTING LITERATURE AND BY FIELD OBSERVATION.

ALL MAMMALS OBSERVED IN THE 1/4-SECTION BIRD QUADRATS WILL BE RECORDED. SMALL MAMMALS WILL BE SAMPLED BY SATURATION TRAPPING ON 2-HECTARE SUBUNITS OF THE QUADRATS. DATA ON BIG GAME AND FURBEARERS WILL BE OBTAINED FROM STATE AND FEDERAL AGENCIES. BIG GAME DATA WILL BE SUPPLEMENTED BY AERIAL CENSUS. DATA ON ENDANGERED AND SPECIAL INTEREST SPECIES WILL BE OBTAINED FROM COOPERATING AGENCIES AND

SUPPLEMENTED BY FIELD OBSERVATION AND INTERVIEW. OCCURRENCE OF AMPHIBIANS AND REPTILES WILL BE RECORDED ON THE BIRD AND MAMMAL SAMPLING UNITS. AND SAMPLING OF RESTRICTED AND AQUATIC HABITATS. EXISTING LITERATURE WILL BE UTILIZED WHENEVER AVAILABLE AND FEASIBLE. (REAP)

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0000592
ROJECT TITLE:
INVERTEBRATES OF SOUTHWESTERN NORTH DAKOTA: LAND MOLLUSCA
ROJECT NUMBER:
REAP 6-02-1
NVESTIGATORS:
DAVID BICKEL
ESEARCH INSTITUTION:
MINOT STATE COLLEGE, COOP. EDUCATION PROGRAM
MINOT, ND 58701
RIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
RIMARY FUNDING AMOUNT:
5,500
IME FRAME:
MAY 1, 1976 TO JULY 31, 1977
OCATION:
ND - MISSOURI RIVER BASIN
BSTRACT:

THE SPECIES OF LAND MOLLUSCA THAT OCCUR SOUTH AND WEST OF THE MISSOURI RIVER IN NORTH DAKOTA WILL BE DETERMINED BY FIELD SAMPLING DURING JUNE, 1976. A SAMPLE GRID BASED ON INTERSECTS OF 30' (HALF PARALLELS AND MERIDIANS) OF LATITUDE AND LONGITUDE WILL DIRECT COLLECTING TO 26 SAMPLING AREAS EVENLY SPACED OVER THE STUDY AREA. AT EACH SAMPLING AREA OR STATION SAMPLES WILL BE TAKEN FROM OPEN (NO WOODY VEGETATION) AND COVERED (WOODY VEGETATION) HABITATS. IN ADDITION, OTHER COLLECTIONS WILL BE MADE AS NEEDED TO INSURE AN ADEQUATE SURVEY OF THE MOLLUSCAN FAUNA. ALTOGETHER ABOUT 100 SAMPLING STATIONS WILL BE COLLECTED AND DESCRIBED. THE LOCALITIES OF OCCURRENCE WILL BE REPORTED FOR EACH SPECIES. FOR EACH LOCALITY THE PHYSIOGRAPHIC SETTING, ASSOCIATED VEGETATION, SOIL TYPE, AND OTHER DESCRIPTIVE HABITAT INFORMATION WILL BE RECORDED. SPECIES, HABITATS, OR ASSEMBLAGES THAT SHOULD BE MANAGE OR PROTECTED BECAUSE OF THEIR UNUSUAL SCIENTIFIC INTEREST WILL BE NOTED, AND A STATUS REPORT WILL BE FILED WITH THE OFFICE OF ENDANGERED SPECIES, U.S. FISH AND WILDLIFE SERVICE FOR ANY TAXON THAT MAY MERIT FORMAL RECOGNITION AS A THREATENED OR ENDANGERED SPECIES. DATA FROM THIS STUDY ARE NECESSARY FOR PROPOSED ENERGY DEVELOPMENT RELATED STUDIES. (REAP)

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00000593
PROJECT TITLE:
INVERTEBRATES OF SOUTHWESTERN NORTH DAKOTA: AQUATIC MOLLUSKS
PROJECT NUMBER:
REAP 6-02-2
INVESTIGATORS:
ALAN M. CVANCARA
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, DEPT. OF GEOLOGY
GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
7,400
TIME FRAME:
JULY 1, 1976 TO JUNE 30, 1977
LOCATION:
ND
ABSTRACT:

THE PRIMARY OBJECTIVE OF THE PROJECT IS TO DETERMINE THE OCCURRENCE AND RELATIVE ABUNDANCE OF AQUATIC MOLLUSK SPECIES IN SOUTHWESTERN NORTH DAKOTA. SECONDARY OBJECTIVES ARE TO: 1. DETERMINE GENERAL ECOLOGICAL FACTORS AFFECTING AQUATIC MOLLUSK DISTRIBUTION, 2. IDENTIFY SPECIES ASSEMBLAGES WITH HABITAT, AND 3. IDENTIFY POSSIBLE THREATENED OR ENDANGERED SPECIES. THE PRINCIPAL INVESTIGATOR HAS SAMPLED ABOUT 70 STATIONS FOR AQUATIC MOLLUSKS AND ECOLOGICAL DATA IN SOUTHWESTERN NORTH DAKOTA, PRIMARILY IN 1967-68. TO UPDATE THIS WORK, ABOUT ONE-THIRD OF THE STATIONS WILL BE RESAMPLED DURING THE SUMMER OF 1976, AND SEVERAL ADDITIONAL LAKES AND PONDS WILL BE SAMPLED BECAUSE STREAMS WERE EMPHASIZED IN THE EARLIER STUDY. ALL ECOLOGICAL AND SPECIES ASSEMBLAGE VERSUS HABITAT DATA WILL BE ANALYZED, FORM BOTH THE OLD AND NEW SAMPLING. SPECIES DISTRIBUTION MAPS WILL BE PRODUCED FOR EACH SPECIES. DATA FROM THIS STUDY ARE NECESSARY FOR PROPOSED ENERGY DEVELOPMENT RELATED STUDIES. (REAP)

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00000594
PROJECT TITLE:
ARTHROPODS OF SOUTHWESTERN NORTH DAKOTA
PROJECT NUMBER:
REAP 6-02-3
INVESTIGATORS:
GREGORY B. MULKERN
RESEARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., DEPT. OF ENTOMOLOGY

, ND 58202
SPONSOR:
H DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
OHN A. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
FUNDING AMOUNT:
00
AME:
, 1976 TO DEC. 15, 1977
N:

T:

PROJECT DIRECTS PRIMARY ATTENTION TO EXISTING COLLECTIONS RECORDS OF INVERTEBRATES, WITH SPECIFIC ATTENTION TO IN- S, WHICH ARE CURRENTLY HELD BY STATE AND FEDERAL AGENCIES IN NORTH DAKOTA. THESE COLLECTIONS WILL BE INVENTORIED IFICALLY FOR IDENTIFIED SPECIES COLLECTED FROM SOUTHWESTERN H DAKOTA. ALL INFORMATION ON THESE SPECIES WILL BE COMPI- CATALOGUED IN COMPLIANCE WITH THE R3S SYSTEM FOR EFFICIENT IEVAL. POSITED SOURCES OF EXISTING INFORMATION ARE: NIVERSITY HELD INSECT COLLECTIONS. 2. PRIVATELY HELD COLLE S, 3. COLLECTIONS HELD BY FEDERAL AGENCIES. 4. RECORDS URVEY AGENCIES (NORTH DAKOTA AND FEDERAL). 5. RECORDS REVIOUSLY COMPLETED STUDIES ON SPECIFIC GROUPS OF INSECTS S-HOPPERS, ANTS, MOSQUITOES, ETC.). 6. PUBLICATIONS OF IES ON SPECIFIC GROUPS OF NORTH DAKOTA INSECTS. 7. RECORDS PECIAL INTEREST AGENCIES SUCH AS THE STATE GAME AND AND FORESTRY DEPARTMENTS.

ITE COLLECTIONS AND MONITORING WILL PROVIDE SUPPLEMENTAL RMATION ON GROUPS THAT HAVE BEEN RECORDED PREVIOUSLY AND RECORDS AND HABITAT INFORMATION ON SPECIES NOT CURRENTLY ESENTED IN COLLECTIONS. IT IS ANTICIPATED THAT THIS RMATION WILL PROVIDE A BASIS FOR SELECTION OF MORE SPE- C GROUPS OF INSECTS AS INDICATOR SPECIES IN ENVIRONMENTAL CT STUDIES. IT WILL ALSO PROVIDE SYNOPTIC COLLECTIONS OF GROUPS TO FACILITATE IDENTIFICATION OF SPECIES.

IFIC LOCALITIES CHOSEN FOR INTENSIVE SAMPLING WILL BE CTED IN CONSULTATION WITH REAP STAFF AND COORDINATED WITH F PROGRAM PARTICIPANTS WHERE PRACTICAL. DATA FROM THIS Y ARE NECESSARY FOR PROPOSED ENERGY DEVELOPMENT RELATED IES. (REAP)

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E
TITLE:
TEBRATES OF SOUTHWESTERN NORTH DAKOTA: SOIL FAUNA AND
SITES
NUMBER:
6-07-4
GATORS:
B. KANNOWSKI
H INSTITUTION:
. OF NORTH DAKOTA, DEPT. OF BIOLOGY
GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN A. REID / STATE CAPITOL BLDG / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
35,000
TIME FRAME:
APR. 15, 1976 TO OCT. 31, 1977
LOCATION:
ND
ABSTRACT:

THE STUDY REPRESENTS AN INVESTIGATION TO DETERMINE THE OCCUR- RENCE AND RELATIVE ABUNDANCE OF SELECTED INVERTEBRATES IN SOUTHWESTERN NORTH DAKOTA. THE ORGANISMS TO BE STUDIED ARE REPRESENTATIVE OF TWO ROLES OF LIFE: THE SOIL MICROFAUNA AND PARASITES. THE SOIL MICROFAUNA HAS BEEN CHOSEN BECAUSE OF ITS SIGNIFICANCE IN THE DEVELOPMENT AND MAINTENANCE OF THE FERTIL- ITY OF SOIL AND OF ITS ROLE IN THE FOOD WEB OF OTHER ORGANISMS. THE TAXONOMIC GROUPS OF SOIL ANIMALS SELECTED FOR INTENSIVE STUDY, ANTS, SPRINGTAILS, PSEUDOSCORPIONS AND EARTHWORMS, ARE ORGANISMS WHICH ARE REPRESENTATIVE OF THE SOIL FAUNA, ARE OF IMPORTANCE IN THE SOIL AND/OR LITTER, AND ARE EXCELLENT INDI- CATORS OF ENVIRONMENTAL QUALITY. PARASITES ARE INCLUDED BE- CAUSE THEY ARE AN IMPORTANT GROUP AFFECTING POPULATION LEVELS OF ALL ORGANISMS, ESPECIALLY GAME ANIMALS AND MAN.

IN ADDITION TO THE PRESENCE AND DISTRIBUTION OF THESE ORGAN- ISMS, THIS PROJECT WILL PROVIDE CORRELATION BETWEEN SPECIES DISTRIBUTION AND ECOLOGICAL SITE CHARACTERISTICS, A CHARAC- TERIZATION OF THE ECOSYSTEMS ON THE BASIS OF THE SOIL FAUNA, A BASELINE OF DATA ON THE PARASITE FAUNA OF SELECTED VERTE- BRATES, AND A BASIS FOR PREDICTING CHANGE AS A RESULT OF MODIFICATION OF THE LANDSCAPE DUE TO INCREASED AGRICULTURAL AND/OR MINING OR OTHER INDUSTRIAL ACTIVITY.

THE SOIL FAUNA WILL BE SAMPLED IN 100 SITES REPRESENTATIVE OF THE ECOLOGICAL COMMUNITIES. THE PARASITES WILL BE SAMPLED FROM SELECTED INDIVIDUALS OF REPRESENTATIVE VERTEBRATES IN THE REGION. (REAP)

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0000556
PROJECT TITLE:
VEGETATION - ENVIRONMENT RELATIONSHIPS OF WOODLAND, SHRUB AND ALGAL COMMUNITIES IN SOUTHWESTERN NORTH DAKOTA
PROJECT NUMBER:
REAP 7-09-[illegible]
INVESTIGATORS:
MOHAN K. WALI
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, DEPT. OF BIOLOGY
GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP

DR. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
79,700
TIME FRAME:
MAY 1, 1976 TO NOV. 15, 1977
LOCATION:
ND - KILLDEER MOUNTAINS ; NORTHERN BADLANDS
ABSTRACT:

THE STUDY IS DESIGNED TO GATHER QUANTITATIVE INFORMATION IN SELECTED WOODLAND AND SHRUBLAND AREAS OF SOUTHWESTERN NORTH DAKOTA, AND ALSO IN THE KILLDEER MOUNTAINS AND NORTHERN BADLANDS. VARIABLES OF VEGETATION UNDER INVESTIGATION WILL BE SPECIES COMPOSITION, SPECIES DIVERSITY, COMMUNITY STRUCTURE AND PRODUCTIVITY. EDAPHIC CONTROL OF THE COMMUNITIES WILL BE INVESTIGATED BY DOCUMENTING QUANTITIVELY THE SOIL PHYSICAL, AND SOIL AND PLANT CHEMICAL RELATIONSHIPS, INCLUDING TRACE ELEMENTS. A DIRECT AND INDIRECT GRADIENT ANALYSIS ALSO USING SOME SYNTHETIC SCALARS WILL BE EMPLOYED TO ELUCIDATE FACTORS GOVERNING THE DISTRIBUTION, MAINTENANCE AND SUCCESSIONAL TRENDS OF THESE UNIQUE COMMUNITIES. DATA FROM THIS STUDY ARE NECESSARY FOR PROPOSED ENERGY DEVELOPMENT RELATED STUDIES. (REAP)

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00000597
PROJECT TITLE:
ANALYSIS OF GRASSLAND AND WETLAND VEGETATION AND SUCCESSIONAL DAKOTA
PROJECT NUMBER:
REAP 7-01-2
INVESTIGATORS:
WARREN C. WHITMAN
RESEARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., DEPT. OF BOTANY
FARGO, ND 58102
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
77,000
TIME FRAME:
MAY 1, 1976 TO NOV. 30, 1977
LOCATION:
ND
ABSTRACT:

THIS PROJECT PROPOSES THE INITIAL SELECTION OF FOUR KEY AREAS IN SOUTHWESTERN NORTH DAKOTA ON WHICH THE GRASSLAND AND WETLAND VEGETATION WILL BE STUDIED IN DETAIL OVER THE 18 MONTH PERIOD FROM 4-01-76 TO 10-31-77. AT THE SAME TIME THAT THE GRASSLAND AND WETLAND STUDIES ARE BEING MADE BY NDSU A TEAM FROM UND WILL BE STUDYING THE WOODLAND AND SHRUB VEGETATION ON THE SAME KEY AREAS, THUS PROVIDING FOR THE FULL CHARACTERIZATION OF THE VEGETATION ON THESE AREAS.

COMPOSITION OF THE VEGETATION ON DETAILED STUDY SITES IN EACH OF THE KEY AREAS WILL BE DETERMINED BY POINT ANALYSIS AND FREQUENCY PLOTS, WHILE APPROXIMATE PRODUCTIVITY OF GRASSLAND AND WETLAND VEGETATION WILL BE DETERMINED BY WEIGHT ESTIMATE AND SMALL PLOT CLIPPINGS (DOUBLE-SAMPLING). DISTRIBUTION OF THE PLANT COMMUNITIES WILL BE MAPPED IN EACH OF THE KEY AREAS. PERMANENT PLOTS FOR FUTURE MONITORING PURPOSES WILL BE ESTABLISHED AT THE DETAILED STUDY SITES. RESULTS FROM OTHER STUDIES IN THE REGION AS A WHOLE WILL BE INTEGRATED INTO THE FINAL REPORT. DATA FROM THIS STUDY ARE NECESSARY FOR PROPOSED ENERGY DEVELOPMENT RELATED STUDIES. (REAP)

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00000598
PROJECT TITLE:
AN EVALUATION OF THE NEED FOR AND DESIRED LOCATIONS OF ADDITIONAL METEOROLOGICAL STATIONS IN WESTERN NORTH DAKOTA
PROJECT NUMBER:
REAP 8-01-1
INVESTIGATORS:
JUANITO M. RAMIREZ / T. METHOD / D. NANTT / R. GORDON
RESEARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., DEPT. OF SOILS
FARGO, ND 58102
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG. / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
57,000
TIME FRAME:
APR. 19, 1976 TO DEC. 15, 1976
LOCATION:
ND
ABSTRACT:

THIS STUDY AIMS TO ASSESS THE NEED AND IDENTIFY THE DESIRED LOCATIONS FOR ADDITIONAL METEOROLOGICAL MONITORING STATIONS IN WESTERN NORTH DAKOTA. A SECOND OBJECTIVE IS TO EVALUATE THE NEED FOR AUGMENTING THE INSTRUMENTATION AT EXISTING STATIONS TO PROVIDE ADEQUATE INFORMATION NECESSARY FOR COMPREHENSIVE ENVIRONMENTAL ASSESSMENTS IN THE AREA.

TO ACCOMPLISH THE OBJECTIVES, A 15-WEEK FIELD MONITORING PROGRAM WILL BE UNDERTAKEN. TWO MOBILE UNITS USING METROSONDE SYSTEMS FOR COLLECTING UPPER AIR INFORMATION WILL BE EMPLOYED IN THE STUDY AREA TO ASCERTAIN THE AREAS WHERE INFORMATION GAPS MAY EXIST. SIX PORTABLE ELECTRONIC WEATHER STATIONS WILL BE USED AT SELECTED SITES IN THE STUDY AREA TO ASSESS LOCAL DISCONTINUITIES WHICH MAY OR MAY NOT BE REFLECTED BY THE EXISTING NETWORK OF SURFACE WEATHER STATIONS.

ALL AVAILABLE LONG-TERM DATA FROM THE EXISTING MONITORING

TIONS IN THE AREA WILL BE OBTAINED AND ANALYZED FOR ADE-
CY TO THE ASSESSMENT OF FUTURE AND CURRENT ENVIRONMENTAL
CERNS IN THE AREA. APPROPRIATE STATISTICAL DESIGN AND
LYSES PROCEDURES WILL BE EMPLOYED IN THE FIELD OBSERVATION
EVALUATION PHASES OF THE STUDY. THE DATA FROM THIS STUDY
NECESSARY FOR PROPOSED ENERGY DEVELOPMENT RELATED STUDIES.
AP)

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99
T TITLE:
TH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM AIR
LITY NETWORK
T NUMBER:
P A-00-1
IGATORS:
LIS VAN HEUVELEN
CH INSTITUTION:
TH DAKOTA STATE DEPT. OF HEALTH. DIV. OF ENV. ENG.
TE CAPITOL BLDG / BISMARCK, ND 58505
Y SPONSOR:
TH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
JOHN R. REID / STATE CAPITOL BLDG / BISMARCK, ND 58505
Y FUNDING AMOUNT:
,000
RAME:
1, 1976 TO JUNE 30, 1977
ON:

CT:
S PROJECT WILL ESTABLISH SEVEN ADDITIONAL AIR QUALITY MONI-
ING STATIONS IN SOUTHWESTERN NORTH DAKOTA. OF THESE.
EE WILL BE LEVEL III STATIONS, THREE WILL BE LEVEL II, AND
REMAINING ONE WILL BE A LEVEL I STATION, WITH A COMPLETE
AY OF STANDARD EQUIPMENT. THE COLLECTED DATA WILL BE ANA-
ED AND EVALUATED TO DETERMINE THE DEGREE OF ADEQUACY OF
NETWORK. A COMPILATION OF RELEVANT LITERATURE AND DATA
RCES WILL ALSO BE PROVIDED. THE DATA FROM THIS STUDY ARE
ESSARY FOR PROPOSED ENERGY DEVELOPMENT STUDIES. (REAP)

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00
T TITLE:
TERN MONTANA AIR QUALITY MONITORING
IGATORS:
E ROACH
CH INSTITUTION:
TANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES
ENA, MT 59601

PRIMARY SPONSOR:
U.S. EPA, REGION VIII
1860 LINCOLN ST. / DENVER, CO 80203
PRIMARY FUNDING AMOUNT:
72,357
TIME FRAME:
JULY 1, 1976 TO JUNE 30, 1977
LOCATION:
MT - COLSTRIP AREA
ABSTRACT:
MONTANA'S IMPLEMENTATION PLAN REQUIRES AIR POLLUTANTS TO BE CONTROLLED. WITH EXTENSIVE COAL INDUSTRY DEVELOPMENT IN EASTERN MONTANA, WE ARE RESPONSIBLE FOR DETERMINING BACKGROUND LEVELS TO GAUGE DEVELOPMENT AND ENFORCE STANDARDS IN AREAS WHERE VIOLATIONS MAY OCCUR. THIS PROJECT WILL ALLOW THE AIR QUALITY BUREAU TO CONTINUE ITS PRESENT AIR MONITORING PROGRAM IN THE COAL DEVELOPMENT AREAS.
OBJECTIVE: INTERMEDIATE TERM GOALS ARE TO DETERMINE BACKGROUND LEVELS IN GENERAL ENERGY RESOURCE DEVELOPMENT AREAS AND TO GAUGE AND PREVENT DETERIORATION OF AIR QUALITY. SHORT TERM GOALS RELATE TO OUR EVALUATION OF COLSTRIP GENERATING UNITS FOR CURRENT AIR QUALITY VIOLATIONS. WE ARE LOOKING MORE SPECIFICALLY AT STRIP MINING ACTIVITIES AND HOW THEY RELATE TO AMBIENT PARTICULATE EMISSIONS. (MEAC)

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00000601
PROJECT TITLE:
PHYSIOLOGICAL RESPONSES OF VEGETATION TO COAL-FIRED POWER PLANT EMISSIONS
INVESTIGATORS:
DAVID TINGEY / RICHARD FIELD / LUCIA BARD
RESEARCH INSTITUTION:
U.S. EPA, CORVALLIS NAT. ENV. RESEARCH CENTER
PRIMARY SPONSOR:
U.S. EPA, OFFICE OF RESEARCH & DEV.
TIME FRAME:
JULY, 1974 TO JULY, 1979
LOCATION:
MT - COLSTRIP AREA
ABSTRACT:
THIS COMPONENT OF THE COAL-FIRED POWER PLANT PROJECT IS DESIGNED TO SUPPLY PLANT PHYSIOLOGICAL SUPPORT. THIS WILL BE ACCOMPLISHED BY 1. EXPERIMENTALLY ASSESSING THE SENSITIVITY OF SELECTED PLANT SPECIES TO OZONE, NITROGEN DIOXIDE ALONE. SULFUR DIOXIDE ALONE, AND TO MIXTURES OF THESE THREE GASES. 2. DETERMINING THE INFLUENCE OF MOISTURE STRESS ON SENSITIVITY AND GROWTH OF NATIVE PLANTS EXPOSED TO SULFUR DIOXIDE, NITROGEN DIOXIDE AND TO MIXTURES OF THESE, AND 3. MEASURING RATES OF UPTAKE OF SO2 AND NO2 BY THE PLANTS. (MEAC)
TYPE OF STUDY:
PART OF `THE BIOENVIRONMENTAL IMPACT OF A COAL-FIRED POWER

PLANT,´ U.S. EPA, SERIAL NUMBER 00000172. ERIS QUARTERLY
REPORT VOL. 1. NO. 1, NOVEMBER, 1975

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00000602
PROJECT TITLE:
THE FIELD EXPERIMENTAL COMPONENT: EVALUATION OF THE ZONAL
AIR POLLUTION SYSTEM
INVESTIGATORS:
JEFFREY LEE / ROBERT A. LEWIS / DENIS E. BODY
RESEARCH INSTITUTION:
U.S. EPA, CORVALLIS NAT. ENV. RESEARCH CENTER
700 SW 35TH ST / CORVALLIS, OR 97330
PRIMARY SPONSOR:
U.S. EPA, OFFICE OF RESEARCH & DEV.
TIME FRAME:
JULY, 1975 TO JULY, 1979
LOCATION:
MT - COLSTRIP AREA
ABSTRACT:
THESE EXPERIMENTS ARE DESIGNED TO TEST THE EFFECTS OF SO2 UPON
PLANT AND ANIMAL BIOMASS DYNAMICS; PLANT COMMUNITY STRUCTURE;
INSECT AND FUNGAL DISEASES OF PLANTS; POLLINATION SYSTEMS;
LICHENS; AND UPON A NUMBER OF PHYSIOLOGICAL AND BIOCHEMICAL
FUNCTIONS.
THIS ZONAL AIR POLLUTION SYSTEM WILL CONSIST OF A SEPARATE
SO2 DELIVERY SYSTEM FOR EACH OF THE FOUR ONE ACRE PLOTS AT
THE STRESS SITE, A COMMON MONITORING SYSTEM, AND A COMMON
ELECTRIC POWER SYSTEM. THE SYSTEM WAS DESIGNED TO ALLOW US
TO MAINTAIN A DIFFERENT CONSTANT 30-DAY MEDIAN CONCENTRATION
ON EACH PLOT DURING THE GROWING SEASON. THE ULTIMATE DE-
SIGN GOAL WAS TO PROVIDE A SYSTEM FOR WELL-DEFINED ASSESS-
MENT OF THE SULFUR DIOXIDE IMPACT ON OTHERWISE UNDISTURBED
GRASSLAND ECOSYSTEMS. (MEAC)
TYPE OF STUDY:
PART OF ´THE BIOENVIRONMENTAL IMPACT OF A COAL-FIRED POWER
PLANT,´ U.S. EPA, SERIAL NUMBER 00000172. ERIS QUARTERLY
REPORT VOL. 1. NO. 1, NOVEMBER, 1975.

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00000603
PROJECT TITLE:
EFFECTS OF COAL-FIRED POWER PLANT EMISSIONS ON VERTEBRATE
ANIMALS IN SOUTHEASTERN MONTANA
INVESTIGATORS:
ROBERT A. LEWIS / MARTIN L. MORTON / SUSAN C. JONES
RESEARCH INSTITUTION:
U.S. EPA, CORVALLIS NAT. ENV. RESEARCH CENTER
700 SW 35TH ST / CORVALLIS, OR 97330
PRIMARY SPONSOR:
U.S. EPA, OFFICE OF RESEARCH & DEV.
TIME FRAME:
JULY 1, 1974 TO JULY, 1979
LOCATION:
MT - COLSTRIP AREA
ABSTRACT:
TO ADDRESS THE OVERALL GOALS OF THE MONTANA COAL-FIRED
POWER PLANT PROJECT WE ARE ATTEMPTING TO IDENTIFY:
A. THOSE POPULATIONS OF BIRDS AND MAMMALS IN THE STUDY ARE
THAT ARE MOST SENSITIVE TO AIR POLLUTION; B. THOSE SPECIES
SYSTEMS, AND FUNCTIONS THAT MAY SERVE AS SPECIFIC, ´NOISE-
FREE´ INDICATORS OF POLLUTION; C. POPULATION COMPONENTS
THAT MAY SERVE AS A MEASURE OF IMPACT IN THE SENSE THAT THE
THEMSELVES ARE ECOSYSTEM RESOURCES OR ARE COUPLED TO ECO-
SYSTEM RESOURCES. WE SHALL ATTEMPT TO RELATE, IF POSSIBLE
FUNCTIONS OF TYPES B. AND C. TO EVOLVE EXTRAPOLATIVE OR
PREDICTIVE MODELS. (MEAC)
TYPE OF STUDY:
PART OF ´THE BIOENVIRONMENTAL IMPACT OF A COAL-FIRED
POWER PLANT,´ U.S. EPA, SERIAL NUMBER 00000172. ERIS
QUARTERLY REPORT VOL. 1. NO. 1, NOVEMBER, 1975.

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00000604
PROJECT TITLE:
A REMOTE SENSING STUDY OF THE BIOENVIRONMENTAL EFFECTS
OF STACK EMISSIONS FROM THE COLSTRIP, MONTANA, POWER PLANT
INVESTIGATORS:
THOMAS R. OSBERG / ROBERT A. LEWIS / JOHN E. TAYLOR
RESEARCH INSTITUTION:
U.S. EPA, CORVALLIS NAT. ENV. RESEARCH CENTER
700 SW 35TH ST / CORVALLIS, OR 97330
PRIMARY SPONSOR:
U.S. EPA, OFFICE OF RESEARCH & DEV.
TIME FRAME:
JULY, 1974 TO JULY, 1979
LOCATION:
MT - COLSTRIP, MT
ABSTRACT:
AS A KEY INTEGRATIVE ELEMENT OF THE MONTANA COAL-FIRED
POWER PLANT PROJECT, WE ARE DEVELOPING AND APPLYING REMOT
SENSING AS A TOOL TO A. DETECT BIOLOGICAL EFFECTS OF AIR
POLLUTANT CHALLENGE; B. MEASURE INVENTORY LOSS THAT RE-
SULTS FROM STRIP MINING, INSTALLATION OF POWER LINES, IN-
CREASED HUMAN ACTIVITY, WATER USE AND OTHER POTENTIALLY
CONFOUNDING INFLUENCES SUCH AS PESTICIDES, DISEASE, AND
POPULATION CYCLING; AND C. AID IN THE DEVELOPMENT OF
PREDICTIVE MODELS. (MEAC)
TYPE OF STUDY:
PART OF ´THE BIOENVIRONMENTAL IMPACT OF A COAL-FIRED

POWER PLANT," U.S. EPA, SERIAL NUMBER 00000172. ERIS
QUARTERLY REPORT VOL. 1, NO. 1, NOVEMBER, 1975.

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000605
OJECT TITLE:
INVESTIGATIONS OF THE EFFECTS OF COAL-FIRED POWER PLANT
EMISSIONS UPON INSECTS
VESTIGATORS:
JERRY J. BROMENSHENK
SEARCH INSTITUTION:
UNIV. OF MONTANA, ENVIRONMENTAL STUDIES PROGRAM
MISSOULA, MT 59801
IMARY SPONSOR:
U.S. EPA, OFFICE OF RESEARCH & DEV.
CORVALLIS NAT. ENV. RESEARCH CENTER / 700 SW 35TH ST /
CORVALLIS, OR 97330
ME FRAME:
JULY, 1974 TO JULY, 1979
CATION:
MT - COLSTRIP AREA
STRACT:
THE INSECT STUDIES SHOULD CONTRIBUTE TO AN UNDERSTANDING OF
THE PLANT-INSECT-FUNGAL RELATIONS OF BOTH THE GRASSLAND AND
FOREST ECOSYSTEMS OF SOUTHEASTERN MONTANA. THE INFORMATION
ABOUT RESPONSES OF POLLINATORS TO AIR POLLUTION STRESS
SHOULD BE INVALUABLE TO THE OTHER STUDIES BEING CONDUCTED
ON PLANT DIVERSITY, PLANT PRODUCTIVITY, AND ENERGY FLOW
RELATIONS. THIS STUDY CONTRIBUTES INFORMATION ABOUT INSECT
POPULATION TRENDS, BEHAVIOR, AND PHYSIOLOGY, AS WELL AS
FOLLOWING PATHWAYS OF AIR POLLUTANTS THROUGH AN INSECT
SYSTEM: HONEYBEES. (MEAC)
PE OF STUDY:
PART OF "THE BIOENVIRONMENTAL IMPACT OF A COAL-FIRED POWER
PLANT," U.S. EPA, SERIAL NUMBER 00000172. ERIS QUARTERLY
REPORT, VOL. 1, NO. 1, NOVEMBER, 1975

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000606
OJECT TITLE:
AIR MONITORING CHARACTERIZATION AT THE HAY COULEE SITE,
COLSTRIP, MONTANA
VESTIGATORS:
JAMES R. MILLER / T. CAIL / ALLEN S. LEFOHN
SEARCH INSTITUTION:
U.S. EPA, CORVALLIS NAT. ENV. RESEARCH CENTER
700 SW 35TH ST / CORVALLIS, OR 97330
IMARY SPONSOR:
U.S. EPA, OFFICE OF RESEARCH & DEV.
TIME FRAME:
JULY, 1974 TO JULY, 1979
LOCATION:
MT - COLSTRIP, HAY COULEE SITE
ABSTRACT:
THE AIR MONITORING CHARACTERIZATION WORK IS AN INTEGRAL
COMPONENT OF THE MONTANA COAL-FIRED POWER PLANT PROJECT DESIGNED
TO DETERMINE THE EFFECTS OF EMISSIONS FROM COAL-FIRED POWER PLANTS ON THE SURROUNDING ENVIRONMENT. A MOBILE
LABORATORY WAS INSTALLED AT HAY COULEE, ABOUT SEVEN MILES
SOUTHEAST OF THE COLSTRIP PLANT LOCATION. MEASUREMENTS OF
CARBON MONOXIDE, METHANE, NITRIC OXIDE, NITROGEN DIOXIDE,
OZONE, TOTAL SULFUR, PARTICULATES, WIND SPEED AND DIRECTION
ARE TAKEN AND RECORDED. (MEAC)
TYPE OF STUDY:
PART OF "THE BIOENVIRONMENTAL IMPACT OF A COAL-FIRED POWER
PLANT," U.S. EPA, SERIAL NUMBER 00000172. ERIS QUARTERLY
REPORT, VOL. 1, NO. 1, NOVEMBER, 1975.

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00000607
PROJECT TITLE:
VEGETATION PRODUCTION STUDY - COLSTRIP
INVESTIGATORS:
ROBERT E. CARROLL
RESEARCH INSTITUTION:
ECOLOGICAL CONSULTING SERVICE
AIRPORT WAY BLDG. WEST / 1300 BLOCK CEDAR ST. / HELENA, MT
PRIMARY SPONSOR:
WESTERN ENERGY CO.
MICHAEL R. GRENDE / 40 E. BROADWAY / BUTTE, MT 59701
PRIMARY FUNDING AMOUNT:
PROPRIETARY
TIME FRAME:
JAN. 1, 1976 TO DEC. 31, 1976
LOCATION:
MT - ROSEBUD CO., COLSTRIP
ABSTRACT:
STUDY TO OBTAIN ANNUAL VEGETATION PRODUCTION OF A SEVERAL
SQUARE MILE AREA AT COLSTRIP, MONTANA.

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00000608
PROJECT TITLE:
AIR QUALITY MONITORING
PROJECT NUMBER:
133-70-A
INVESTIGATORS:
ROBERT E. CARROLL

RESEARCH INSTITUTION:
ECOLOGICAL CONSULTING SERVICE
AIRPORT WAY BLDG. WEST / 1300 BLOCK CEDAR ST. / HELENA, MT
PRIMARY SPONSOR:
PEABODY COAL CO.
JACK L. BECKNER / 301 NORTH MEMORIAL DRIVE / ST. LOUIS, MO
PRIMARY FUNDING AMOUNT:
PROPRIETARY
TIME FRAME:
DEC. 31, 1975 TO DEC. 31, 1976
LOCATION:
MT - ROSEBUD CO., COLSTRIP
ABSTRACT:
STUDY TO OBTAIN AMBIENT PARTICULATE LOADING. WIND SPEED AND DIRECTION, AND NUMEROUS OTHER AIR QUALITY DATA.
REPORTS AND PUBLICATIONS:
REPORT WILL BE FILED WITH MONTANA DEPT. OF STATE LANDS.

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00000609
PROJECT TITLE:
LOWER YELLOWSTONE AQUATIC INVERTEBRATE AND FORAGE FISH STUDY
INVESTIGATORS:
ROBERT NEWELL, (GLENDIVE, MT - F&G)
RESEARCH INSTITUTION:
MONTANA DEPT. OF FISH AND GAME
HELENA, MT 59601
PRIMARY SPONSOR:
INTAKE WATER CO.
PRIMARY FUNDING AMOUNT:
FY 75 - 25,000 / FY 76 - 25,000
TIME FRAME:
AUG., 1974 TO AUG., 1976
LOCATION:
MT - YELLOWSTONE RIVER
ABSTRACT:
OBJECTIVES: 1. INVENTORY AQUATIC INVERTEBRATES AND FORAGE FISH SUPPORTING MAJOR FISH POPULATIONS IN THE LOWER YELLOWSTONE RIVER, AND 2. ASSESS POTENTIAL EFFECTS OF REDUCED RIVER FLOWS ON AQUATIC INVERTEBRATES. (MEAC)

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00000610
PROJECT TITLE:
TONGUE RIVER FISHERIES STUDY
INVESTIGATORS:
AL ELSER (TONGUE RIVER) / ROBERT NEWELL / LARRY PETERMAN (YELLOWSTONE RIVER)
RESEARCH INSTITUTION:
MONTANA DEPT. OF FISH & GAME
HELENA, MT 59601
PRIMARY SPONSOR:
OLD WEST REGIONAL COMMISSION
DR. KENNETH A. BLACKBURN / PRATT BLDG. 306A / BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT:
FY 75 - 38,000 / FY 76 - 45,000
TIME FRAME:
OCT., 1974 TO DEC. 30, 1976
LOCATION:
MT - TONGUE RIVER, YELLOWSTONE RIVER
ABSTRACT:
OBJECTIVES: 1. TO COLLECT BASIC FISH POPULATION DATA, SPECIES DIVERSITY, AND LONGITUDINAL DISTRIBUTION ON THE TONGUE RIVER, 2. TO IDENTIFY AND DETERMINE SPECIES DIVERSITY FOR AQUATIC INVERTEBRATES AND FORAGE FISH ON THE MIDDLE AND LOWER YELLOWSTONE RIVER, AND 3. TO ASSESS POTENTIAL EFFECTS OF DEWATERING ON THESE COMPONENTS OF THE ECOSYSTEM. (MEAC)
TYPE OF STUDY:
PART OF 'EVALUATING POTENTIAL PHYSICAL, BIOLOGICAL, AND WATER USE IMPACTS OF WATER WITHDRAWALS AND WATER DEVELOPMENT ON THE MIDDLE AND LOWER PORTIONS OF THE YELLOWSTONE RIVER DRAINAGE IN THE STATE OF MONTANA,' OLD WEST REGIONAL COMMISSION, SERIAL NUMBER 00000086, ERIS QUARTERLY REPORT, VOL. 1, NO. 1, NOVEMBER, 1975.

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00000611
PROJECT TITLE:
LOWER YELLOWSTONE RIVER FURBEARER STUDY
INVESTIGATORS:
PETER MARTIN
RESEARCH INSTITUTION:
MONTANA DEPT. OF FISH AND GAME
FORSYTH, MT
PRIMARY SPONSOR:
OLD WEST REGIONAL COMMISSION
DR. KENNETH A. BLACKBURN / PRATT BLDG. 306A / BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT:
FY 75 - 5,000 / FY 76 - 4,000
TIME FRAME:
OCT., 1974 TO DEC. 30, 1976
LOCATION:
MT - YELLOWSTONE RIVER BASIN
ABSTRACT:
OBJECTIVES: 1. INVENTORY FURBEARERS AND ASSOCIATED HABITAT TYPES ALONG THE LOWER YELLOWSTONE RIVER, AND 2. AS-

SESS IMPACT OF ALTERED STREAMFLOWS ON FURBEARER POPULATIONS. (MEAC)
TYPE OF STUDY:
PART OF "EVALUATION OF POTENTIAL PHYSICAL, BIOLOGICAL, AND WATER USE IMPACTS OF WATER WITHDRAWALS AND WATER DEVELOPMENT ON THE MIDDLE AND LOWER PORTIONS OF THE YELLOWSTONE RIVER DRAINAGE IN THE STATE OF MONTANA," OLD WEST REGIONAL COMMISSION, SERIAL NUMBER 00000086, ERIS QUARTERLY REPORT, VOL. 1, NO. 1, NOVEMBER, 1975.

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00000612
PROJECT TITLE:
YELLOWSTONE RIVER MIGRATORY BIRD STUDY
INVESTIGATORS:
TOM HINZ
RESEARCH INSTITUTION:
MONTANA DEPT. OF FISH AND GAME
MILES CITY, MT
PRIMARY SPONSOR:
OLD WEST REGIONAL COMMISSION
DR. KENNETH A. BLACKBURN / FRATT BLDG. 306A / BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT:
FY 75 - 35,000 / FY 76 - 28,000
TIME FRAME:
SEPT., 1974 TO DEC. 30, 1976
LOCATION:
MT - YELLOWSTONE RIVER BASIN
ABSTRACT:
OBJECTIVES: 1. TO INVENTORY AND ASSESS IMPORTANCE OF YELLOWSTONE RIVER TO MIGRATORY BIRDS, AND 2. TO ASSESS EFFECTS OF ALTERED STREAMFLOWS ON MIGRATORY BIRDS USING THE RIVER. (MEAC)
TYPE OF STUDY:
PART OF "EVALUATION OF POTENTIAL PHYSICAL, BIOLOGICAL, AND WATER USE IMPACTS OF WATER WITHDRAWALS AND WATER DEVELOPMENT ON THE MIDDLE AND LOWER PORTIONS OF THE YELLOWSTONE RIVER DRAINAGE IN THE STATE OF MONTANA," OLD WEST REGIONAL COMMISSION. SERIAL NUMBER 00000086, ERIS QUARTERLY REPORT, VOL. 1, NO. 1, NOVEMBER, 1975.

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00000613
PROJECT TITLE:
DECKER-BIRNEY WILDLIFE STUDY
INVESTIGATORS:
STEVE KNAPP (BIRNEY, MT)
RESEARCH INSTITUTION:
MONTANA DEPT. OF FISH AND GAME
HELENA, MT 59601
PRIMARY SPONSOR:
U.S. BUREAU OF LAND MANAGEMENT
PRIMARY FUNDING AMOUNT:
34,000
TIME FRAME:
AUG., 1974 TO JUNE, 1976
LOCATION:
MT - DECKER - BIRNEY AREA
ABSTRACT:
OBJECTIVES: 1. TO GATHER FISH AND WILDLIFE RESOURCE INFORMATION TO FILL THE RECOGNIZED NEEDS OF THE DECKER-BIRNEY STUDY, AND 2. TO DEVELOP TECHNIQUES TO QUANTIFY WILDLIFE RESOURCES, EITHER DIRECTLY OR THROUGH HABITAT QUALITY AND POPULATION PRODUCTIVITY INDICES. (MEAC)

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00000614
PROJECT TITLE:
FISHERIES INVESTIGATIONS OF THE YELLOWSTONE RIVER, AS RELATED TO WATER QUALITY INVESTIGATIONS OF THE YELLOWSTONE RIVER, MONTANA
INVESTIGATORS:
LARRY PETERMAN
RESEARCH INSTITUTION:
MONTANA DEPT. OF FISH AND GAME
MILES CITY, MT
PRIMARY SPONSOR:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
GEORGE PIKE / FEDERAL BLDG / HELENA, MT 59601
PRIMARY FUNDING AMOUNT:
25,608
TIME FRAME:
APR., 1976 TO NOV., 1976
LOCATION:
MT - YELLOWSTONE RIVER
ABSTRACT:
THIS STUDY IS AN ADDENDUM TO U.S.G.S. CONTRACT 14-08-0001-G-302 AND WILL COMPLEMENT AN EXISTING FISHERIES STUDY BEING CONDUCTED BY THE DEPARTMENT OF FISH AND GAME ON THE LOWER YELLOWSTONE RIVER. THIS STUDY, ALONG WITH THE WATER QUALITY INVERTEBRATE, FURBEARER, WATERFOWL AND OTHER AQUATIC STUDIES PREVIOUSLY MENTIONED, WILL AID IN ATTAINING A BETTER UNDERSTANDING OF THE TOTAL YELLOWSTONE RIVER ECOSYSTEM. THIS INFORMATION WILL HELP FORECAST THE CONSEQUENCES OF PROPOSED DEVELOPMENTS AND WILL HELP FORMULATE A WATER MANAGEMENT PLAN TO PROTECT THE STREAM FOR BIOLOGICAL NEEDS. (MEAC)

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00000615
PROJECT TITLE:
WESTERN REGIONAL ENERGY DEVELOPMENT STUDY: PRIMARY ENVIRONMENTAL IMPACTS
INVESTIGATORS:
F. SCOTT LA GRONE
RESEARCH INSTITUTION:
RADIAN CORP.
P.O. BOX 9948 / AUSTIN, TX 78766
PRIMARY SPONSOR:
U.S. COUNCIL ON ENVIRONMENTAL QUALITY
U.S. ERDA / U.S. EPA / U.S. FEDERAL ENERGY ADMINISTRATION / U.S. DEPT. OF INTERIOR / NATIONAL SCIENCE FOUNDATION
PRIMARY FUNDING AMOUNT:
171,864
TIME FRAME:
MAR., 1974 TO MAR., 1975
LOCATION:
AZ CO MT NM ND UT WY
ABSTRACT:
PURPOSE: TO EXAMINE THE PRIMARY ENVIRONMENTAL IMPACTS OF 38 ENERGY RESOURCES DEVELOPMENT SCENARIOS, INCLUDING AIR AND WATER EMISSION, SOLID WASTE AND LAND REQUIREMENTS. PROJECTIONS ARE ALSO MADE OF GROUND LEVEL AMBIENT CONCENTRATIONS OF POLLUTANTS. THESE PROJECTIONS ARE COMPARED WITH FEDERAL AND STATE AIR QUALITY STANDARDS. THE SCENARIOS INCLUDE ALL ASPECTS OF DEVELOPMENT - EXTRACTION, CONVERSION AND TRANSPORTATION TO POINT OF END USE. THE STUDY ALSO SURVEYS THE ENERGY RESOURCES OF ARIZONA, COLORADO, MONTANA, NEW MEXICO, NORTH DAKOTA, UTAH AND WYOMING; ESTIMATES ENERGY DEMAND PATTERNS IN SEVEN CITIES AND DISCUSSES WATER REQUIREMENTS, ENERGY EFFICIENCY AND TECHNOLOGICAL FEASIBILITY OF THE DIFFERENT SCENARIOS.
TYPE OF STUDY:
PART OF THREE PART WESTERN REGIONAL ENERGY DEVELOPMENT STUDY
REPORTS AND PUBLICATIONS:
EXECUTIVE SUMMARY. PB 246-267
VOLUME 1. PB 246-264
VOLUME 2. PB 246-265
APPENDICES. PB 246-266
AVAILABLE FROM NATIONAL TECHNICAL INFORMATION SERVICE. SPRINGFIELD, VA 22161

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00000616
PROJECT TITLE:
PROGRAM DEVELOPMENT FOR MEASUREMENT OF ERODIBILITY OF SPOIL BANKS AND UNTREATED TOPSOIL DUE TO WIND ACTION; A STUDY OF PARTICULATE MATTER GENERATED BY MINING OPERATIONS
INVESTIGATORS:
DR. WILLIAM A. HUNT
RESEARCH INSTITUTION:
MONTANA STATE UNIV., DEPT. OF CIVIL ENG.
BOZEMAN, MT 59715
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
DR. ED BURROUGHS / P.O. BOX 1376 / BOZEMAN, MT 59715
PRIMARY FUNDING AMOUNT:
9,500
TIME FRAME:
APR. 1, 1976 TO SEPT. 30, 1976
LOCATION:
MT - COLSTRIP
ABSTRACT:
OBJECTIVES: A STATE-OF-THE-ART ASSESSMENT OF METHODS FOR PREDICTING THE CONCENTRATIONS OF AIR-BORNE PARTICULATES ORIGINATING WITH SURFACE MINING OPERATIONS IS TO BE MADE TO INVESTIGATE A. THE RELATIVE SIGNIFICANCE OF THIS PROBLEM, B. THE METHODS CURRENTLY USED IN PREPARING ENVIRONMENTAL IMPACT STATEMENTS (EIS) PREDICTING EFFECTS OF AIR-BORNE PARTICULATES, AND C. THE VALUE OF IMPROVING THE PREDICTION METHODS. A SUMMARY OF METHODS CURRENTLY EMPLOYED FOR MINIMIZING THE AMOUNT OF AIR-BORNE PARTICULATES GENERATED AT STRIP MINING OPERATIONS WILL BE PREPARED.
STUDY PLAN - A PROGRAM FOR IMPLEMENTING THESE OBJECTIVES IS DIVIDED INTO FOUR MAIN PHASES AND A NUMBER OF SUBPHASES. THE MAIN PHASES INCLUDE: 1. ASSESSMENT OF MAGNITUDE AND SCOPE OF PROBLEM FROM EXISTING INFORMATION. 2. REVIEW OF EXISTING METHODS AND MODELS FOR PREDICTING CONCENTRATIONS OF AIR-BORNE PARTICULATES; INCLUDING TESTING APPLICABILITY OF THESE METHODS AND MODELS WITH EXISTING DATA OBTAINED FROM SELECTED SITES. 3. ASSESSMENT OF VALUE OF IMPROVING PREDICTION OF ENVIRONMENTAL EFFECTS BY REFINING EXISTING OR DEVELOPING NEW MODELS AND METHODS. 4. DEVELOPMENT OF PROGRAM TO IMPROVE PREDICTION METHODS (IF WARRANTED). (MEAC)
REPORTS AND PUBLICATIONS:
LIST OF LITERATURE REVIEWED WILL BE REPORTED.
AVAILABLE FROM DR. W. E. HUNT, MSU ON REQUEST.

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00000617
PROJECT TITLE:
CONTINUATION OF ENVIRONMENTAL BASELINE AND MONITORING STUDIES AT AMAX BELLE AYR NORTH
PROJECT NUMBER:
6519

ESTIGATORS:
PAUL A. RECHARD
EARCH INSTITUTION:
UNIV. OF WYOMING, WATER RESOURCES RESEARCH INST.
LARAMIE, WY 82071
MARY SPONSOR:
MAX COAL CO.
MARY FUNDING AMOUNT:
3,900
FRAME:
CT. 1, 1975 TO SEPT. 30, 1976
RACT:
URPOSE: TO DESIGN AND CONDUCT A COMPREHENSIVE STUDY OF
ASELINE HYDROLOGICAL, CLIMATOLOGICAL AND BIOLOGICAL CHAR-
CTERISTICS IN THE IMMEDIATE VICINITY OF THE PROPOSED
INING SITE. ALSO ADDITIONAL ENVIRONMENTAL STUDIES IF
PECIFICALLY AUTHORIZED.

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0618
ECT TITLE:
UGITIVE DUST FROM WESTERN SURFACE COAL MINES
ECT NUMBER:
-C3-2477
STIGATORS:
ILLIAM S. KELLY
ARCH INSTITUTION:
ATHTECH, INC.
. O. BOX 2392 / PRINCETON, NJ 08540
ARY SPONSOR:
.S. EPA, CINCINNATI NAT. ENV. RESEARCH CENTER
HILIP J. KARAM / CINCINNATI, OH 45268
ARY FUNDING AMOUNT:
45,840
FRAME:
CT. 1, 1976 TO DEC. 31, 1977
TION:
N WY MT ND CO - 4 SITES NOT YET SELECTED
RACT:
HE PROBLEM IS TO DETERMINE WHETHER OR NOT SURFACE COAL
INES ADD SIGNIFICANT AMOUNTS OF FUGITIVE DUST TO AMBIENT
UST LEVELS IN THE WEST.
HE OBJECTIVES OF THE PROJECT ARE TO DETERMINE THE LEVELS
F FUGITIVE DUST EMITTED BY WESTERN SURFACE COAL MINES, TO
SSESS THE ADEQUACY OF EXISTING DUST CONTROL PROCEDURES,
ND, IF NEEDED, TO IDENTIFY DESIRABLE MODIFICATIONS TO
HESE PROCEDURES.
HE APPROACH WILL BE TO MONITOR UPWIND AND DOWNWIND DUST
EVELS AT FOUR WESTERN SURFACE MINES UNDER THREE DIFFER-
NT CLIMATIC CONDITIONS, AND TO USE THE FIELD DATA IN
OMBINATION WITH APPLICABLE PHYSICAL THEORY TO DEVELOP AND VALIDATE MATHEMATICAL EQUATIONS THAT RELATE FUGITIVE DUST LEVELS TO CRITICAL MINING AND METEOROLOGICAL PARAMETERS.

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00000619
PROJECT TITLE:
WYODAK-VEGETATION AND WYODAK-INSECTS
PROJECT NUMBER:
6922-6923
INVESTIGATORS:
MORTON MAY / ROBERT LAVIGNE
RESEARCH INSTITUTION:
UNIV. OF WYOMING, PLANT SCIENCES DIV.
UNIV. STATION / LARAMIE, WY 82071
PRIMARY SPONSOR:
PACIFIC POWER & LIGHT
GLENROCK, WY
PRIMARY FUNDING AMOUNT:
132,999
TIME FRAME:
JUNE 1, 1976 TO DEC. 31, 1977
LOCATION:
WY - GILLETTE AREA
ABSTRACT:
6922 - TO DETERMINE THE INSECT FAUNA PRESENT IN THE GILLETTE AREA AND ASCERTAIN WHICH OF THESE MIGHT BE INFLUENCED BY THE ADDITION OF MORE UNITS TO THE PACIFIC POWER AND LIGHT WYODAK ELECTRIC GENERATING PLANT, THUR SERVING AS INDICATORS OF AIR POLLLUTION FROM EMISSIONS OF ELECTRIC GENERATING PLANTS.
6923 - TO DETERMINE WHAT EFFECTS, IF ANY, A POWER PLANT MAY HAVE ON THE BIOLOGICAL AND SOIL COMPONENTS IN THE SURROUNDING AREAS.

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00000620
PROJECT TITLE:
ENVIRONMENTAL STUDIES OF BLACK THUNDER AND COAL CREEK LEASES
PROJECT NUMBER:
6533
INVESTIGATORS:
PAUL A. RECHARD
RESEARCH INSTITUTION:
UNIV. OF WYOMING, WATER RESOURCES RESEARCH INST.
P.O. BOX 3067 / UNIVERSITY STATION / LARAMIE, WY 82071
PRIMARY SPONSOR:
ATLANTIC-RICHFIELD CO.

1500 SECURITY LIFE BLDG. / 1616 GLENARM / DENVER, CO 80202
PRIMARY FUNDING AMOUNT:
14,300
TIME FRAME:
OCT. 1, 1975 TO SEPT. 30, 1978
LOCATION:
WY - BLACK THUNDER AND COAL CREEK
ABSTRACT:
PURPOSE: TO RENDER PERIODIC CONSULTING SERVICES IN THE AREA OF ENVIRONMENTAL RESEARCH, SPECIFICALLY IN THE AREAS OF MONITORING AND DEFINING THE HYDROLOGY OF THE BLACK THUNDER AND COAL CREEK LEASES, AND IN REDUCING AND ANALYZING METEOROLOGIC DATA TAKEN FROM THOSE AREAS.

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00000621
PROJECT TITLE:
PREMINING CONDITIONS OF THE BIOTA AND ABIOTA OF SELECTED AQUATIC ECOSYSTEMS OF THE POWDER RIVER COAL BASIN OF NORTHEASTERN WYOMING
PROJECT NUMBER:
8547
INVESTIGATORS:
VICTOR HASFURTHER / THOMAS A. WESCHE / ROBERT D. KERR
RESEARCH INSTITUTION:
UNIV. OF WYOMING, WATER RESOURCES RESEARCH INST.
P.O. BOX 3067 / UNIVERSITY STATION / LARAMIE, WY 82071
COOPERATOR:
UNIV. OF WYOMING, FOREST RESEARCH LAB.
JOHN R. THILENIUS / P.O. BOX 3313, UNIV. STATION / LARAMIE, WY
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT:
6,000
TIME FRAME:
APR. 15, 1975 TO APR. 30, 1976
LOCATION:
WY - POWDER RIVER BASIN
ABSTRACT:
PURPOSE: 1. TO CONTINUE TO MONITOR THE PHYSICAL, BIOLOGICAL AND CHEMICAL CONSTITUENTS OF THE LITTLE POWDER RIVER THROUGH THUNDER BASIN NATIONAL GRASSLAND TO ALLOW FURTHER DEFINITION OF BASE LINE CONDITIONS FOR THIS AQUATIC HABITAT.
2. TO BEGIN TO MONITOR AND TO DEVELOP BASELINE DATA REGARDING THE AQUATIC BIOTA AND ABIOTA OF ANTELOPE CREEK ON THE THUNDER BASIN NATIONAL GRASSLAND IN THE VICINITY OF THE PROPOSED MINERAL RESOURCE DEVELOPMENT BY ROCHELLE COAL CO. AND WYOMING COAL GAS CO.
TYPE OF STUDY:
THIS PROJECT IS RELATED TO ´PRESENT CONDITIONS OF THE AQUATIC BIOTA AND ABIOTA OF THE LITTLE POWDER RIVER IN THE THUNDER BASIN NATIONAL GRASSLAND, WYOMING.´ SERIAL NUMBER 00000144, ERIS QUARTERLY REPORT VOL. 1, NO. 1. NOVEMBER, 1975.

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00000622
PROJECT TITLE:
TO CONTINUE ENVIRONMENTAL BASELINE AND MONITORING STUDIES AT AMAX BELLE AYR SOUTH
PROJECT NUMBER:
6518
INVESTIGATORS:
PAUL A. RECHARD
RESEARCH INSTITUTION:
UNIV. OF WYOMING, WATER RESOURCES RESEARCH INST.
P.O. BOX 3067 / UNIVERSITY STATION / LARAMIE, WY 82071
PRIMARY SPONSOR:
AMAX COAL CO.
PRIMARY FUNDING AMOUNT:
46,100
TIME FRAME:
OCT. 1, 1975 TO SEPT. 30, 1976
LOCATION:
WY - BELLE AYR SOUTH MINE
ABSTRACT:
PURPOSE: TO DESIGN AND CONDUCT A COMPREHENSIVE STUDY OF BASELINE HYDROLOGICAL, CLIMATOLOGICAL, AND BIOLOGICAL CHARACTERISTICS IN THE IMMEDIATE VICINITY OF THE PROPOSED MINING SITE. ALSO ADDITIONAL ENVIRONMENTAL STUDIES IF SPECIFICALLY AUTHORIZED.

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00000623
PROJECT TITLE:
PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT
PROJECT NUMBER:
4852
INVESTIGATORS:
MASON H. SOMERVILLE
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIVERSITY STATION / GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NATURAL GAS PIPELINE CO. OF AMERICA
122 S. MICHIGAN AVE. / CHICAGO, IL 60603
PRIMARY FUNDING AMOUNT:
700,000

IME FRAME:
MARCH, 1975 TO SEPT., 1976
OCATION:
ND - DUNN CO.
BSTRACT:

OBJECTIVE: THE OBJECTIVE IS TO UNDERTAKE THE PRELIMINARY ENGINEERING AND GEOLOGICAL ENVIRONMENTAL ASSESSMENT OF A PROPOSED 250 MILLION STANDARD CUBIC FOOT PER DAY SUBSTITUTE NATURAL GAS PLANT LOCATED IN DUNN COUNTY, NORTH DAKOTA. THIS PLANT IS TO BE THE FIRST OF FOUR BUILT, WITH THE OTHER THREE FOLLOWING SUCCESSFUL COMPLETION OF THE FIRST. THE MINE WILL PRODUCE APPROXIMATELY TWELVE MILLION TONS OF COAL PER YEAR OF WHICH EIGHTY-SEVEN PERCENT WILL BE CONVERTED TO SUBSTITUTE NATURAL GAS BY THE GASIFICATION PLANT.

METHODOLOGY: THE ASSESSMENT IS BROKEN DOWN INTO SIX SUB-PROJECTS CONSISTING OF: 1. EMISSION SPECTRUM AND PROCESS WATER REQUIREMENTS; 2. TRACE ELEMENTS; 3. GEOLOGY AND HYDROLOGY; 4. SURFACE HYDROLOGY; 5. WATER QUALITY; 6. NOISE. THESE WILL BE TREATED AS SEPARATE PROJECTS AND ARE CROSS REFERENCED TO THIS PROJECT.

APPLICATION OF THIS WORK: THIS PROJECT CAN BE USED BY DECISION MAKERS TO ASSESS THE ENGINEERING AND GEOLOGICAL ENVIRONMNETAL IMPACT OF COAL GASIFICATION PLANTS IN THE STATE OF NORTH DAKOTA.

PROGRESS OF WORK AND MAJOR ACCOMPLISHMENTS: THE PROJECT IS IN THE PROCESS OF BEING DRAFTED INTO THE FINAL COPY. THE MAJOR ACCOMPLISHMENT HAS BEEN THE PROVISION OF AN ANALYSIS OF THE ENVIRONMENTAL ASSESSMENT REPORT TO THE NATURAL GAS PIPELINE COMPANY. (REAP)

EPORTS AND PUBLICATIONS:

AN ENGINEERING, GEOLOGICAL AND HYDROLOGICAL ENVIRONMENTAL ASSESSMENT OF A 250 MILLION STANDARD CUBIC FOOT PER DAY DRY ASH LURGI COAL GASIFICATION FACILITY. NATURAL GAS PIPELINE COMPANY. 1975. 27PP.

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D 0624
ROJECT TITLE:
IMPLICATIONS OF SIMULATED LEVELS OF COAL DEVELOPMENT ON THE ATMOSPHERIC ENVIRONMENT AND PLANT ECOSYSTEMS OF SELECTED SITES IN THE NORTHERN GREAT PLAINS: PLANT RESPONSE
NVESTIGATORS:
DR. D. S. GALITZ
ESEARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., DEPT. OF BOTANY
FARGO, ND 58102
RIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59101
RIMARY FUNDING AMOUNT:
FY 75 - 10, 626 (SEAM)
SECONDARY FUNDING AMOUNTS:
FY 75 - 1,689 (FED)
FY 75 - 1,418 (NON-FED)
TIME FRAME:
MAY, 1974 TO MAY, 1976
LOCATION:
ND - STANTON; BEULAH; MERCER, CO.
ABSTRACT:

OBJECTIVE: TO DETERMINE THE EFFECTS OF THE PROBABLE CHANGES IN AIR QUALITY ON PLANT ECOSYSTEMS.

METHODOLOGY: THE POTENTIALLY SUSCEPTIBLE PLANT PROCESSES TO BE STUDIED WILL BE DIVIDED INTO TWO GROUPS. THE FIRST GROUP INVESTIGATED THROUGH JUNE 30, 1975, INCLUDED SEED GERMINATION, SEEDLING ESTABLISHMENT, GROWTH CONDITION AND DISEASE SYMPTOMS. THE LATTER WILL INCLUDE AN EFFORT TO UNCOVER SOME NATIVE SPECIES WHICH MAY SERVE AS INDICATOR PLANTS FOR ACCUMULATION OF TOXIC EFFLUENTS. THE SECOND GROUP OF PLANT RESPONSES TO BE INVESTIGATED THROUGH APRIL, 1976, WILL INCLUDE THE METABOLISM OF NITRATES, TRANSPIRATION RATES, VEGETATIVE REPRODUCTION, RESUMPTION OF GROWTH OF PERENNIALS IN SPRING, SEED PRODUCTION, DORMANCY MECHANISMS, COMPETITION AND POSSIBLE ACCUMULATION OF POTENTIALLY HAZARDOUS HEAVY METALS. FINAL SELECTION OF PROCESSES TO BE INCLUDED IN GROUP II WILL BE BASED ON INDICATIONS FROM GROUP I. THE FINAL SELECTION OF SPECIES TO BE STUDIED, THE PHYSIOLOGICAL AND GROWTH PROCESSES TO BE SCRUTINIZED; THE METHOD OF APPLICATION, RATES OF EXPOSURE, FORMS FOR EVALUATION AND REPORTING, ARE BEING COORDINATED WITH THE EPA LABORATORY AT CORVALLIS, OREGON.

WORK ON THIS PROJECT COMMENCED WITH THE COMPLETION OF PRELIMINARY STUDIES, INITIATED BEFORE APPROVAL OF THE PROJECT, TO STUDY THE EFFECTS OF DROUGHT STRESSES ON UPTAKE AND ASSIMILATION OF NITRATE NITROGEN IN EIGHT SELECTED GRASSES. BOTH IN VIVO AND IN VITRO ASSAY METHODS WERE EVALUATED. FOR IN VITRO STUDIES OPTIMAL EXTRACTION CONDITIONS FOR THE ENZYME NITRATE REDUCTASE WERE DETERMINED TO RANGE FROM 7.0 TO 9.5 DEPENDING ON THE SPECIFIC SPECIES USED, WHEREAS ASSAY PH WAS 7.6 FOR ALL EIGHT SPECIES. SUBSTRATE (NO3) CONCENTRATIONS BETWEEN 1.0 AND 10.0 MM GAVE MAXIMUM ENZYME ACTIVITY WITH THE ENZYME SPECIFIC FOR NADH2 AS COFACTOR. THE RATIO OF MAXIMUM IN VITRO TO IN VIVO ACTIVITY VARIED WITH SPECIES AND RANGED FROM 2.18 TO 10.81. BSA ADDED TO THE EXTRACTION MEDIUM PROTECTED THE ENZYME AND INCREASED THE EXTRACTION YIELD. WITH THESE TECHNIQUES ESTABLISHED,STUDIES ON THE EFFECT OF WATER STRESS ON NITRATE METABOLISM IN RELATION TO GROWTH AND INTERNAL WATER BALANCE HAVE BEEN INITIATED.

TYPE OF STUDY:

PART OF "IMPLICATIONS OF SIMULATED LEVELS OF COAL DEVELOPMENT ON THE ATMOSPHERIC ENVIRONMENT AND PLANT ECOSYSTEMS OF SELECTED SITES IN THE NORTHERN GREAT PLAINS." U.S. FOREST SERVICE, SEAM, SERIAL NUMBER 00000142, ERIS QUARTERLY REPORT VOL. 1, NO. 1, NOVEMBER, 1975.

REPORTS AND PUBLICATIONS:

COMPARISON OF NITRATE REDUCTASE ACTIVITY IN SELECTED GRASS

SPECIES. PLANT PHYSIOLOGY SUPPLEMENT. 1975. 185 P.

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00000625
PROJECT TITLE:
A COMPARATIVE STUDY OF EFFLUENTS AND THEIR CONTROL FROM FOUR DRY ASH LURGI GASIFICATION PLANTS
INVESTIGATORS:
MASON H. SOMERVILLE / JAMES ELDER / CABOT THUNEN / THOMAS OWENS
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA. ENG. EXP. STATION
GRAND FORKS, ND 58202
PRIMARY SPONSOR:
U.S. ERDA
PRIMARY FUNDING AMOUNT:
99,328
TIME FRAME:
APRIL, 1976 TO APRIL, 1977
LOCATION:
ND - DUNN CO.
ABSTRACT:

OBJECTIVE: THIS STUDY WILL ASSIST ERDA AND INDUSTRY IN DEFINING FUTURE RESEARCH AND DEVELOPMENT NEEDS IN THE AREA OF ENVIRONMENTAL CONTROLS AND EQUIPMENT FOR UTILIZATION IN THE GASIFICATION INDUSTRY. THE PROPOSED EFFORT WILL IDENTIFY THE EFFLUENTS FROM AND THE CONTROL METHODS UTILIZED IN THE FOUR GASIFICATION FACILITIES SO THAT DESIGN CAN BE EVALUATED WITH RESPECT TO EXISTING AND PROBABLE REGULATIONS AND ´BEST AVAILABLE´ TECHNOLOGY.

METHODOLOGY: EACH PLANT WILL BE DOCUMENTED TO INCLUDE BUT NOT LIMITED TO 1. THE ENVIRONMENTAL IMPACT STATEMENT. 2. THE PROPRIETARY PROCESS SHEETS. 3. THE FEDERAL POWER COMMISSION SUBMITTAL AND DOCUMENTS FILED WITH THE STATE. DATA ON PROPOSED REGULATIONS WILL BE GATHERED FROM THE APPROPRIATE STATE OR FEDERAL AGENCY. A MATRIX COMPARING THE DESIGN DATA WITH THE ´BEST AVAILABLE´ CONTROL LIMITS. EXISTING REGULATIONS, AND PROBABLE REGULATIONS IS ENVISIONED.

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00000626
PROJECT TITLE:
IMPACT OF COAL STRIP MINING ON THE AQUATIC RESOURCES OF SARPY CREEK DRAINAGE. MONTANA
INVESTIGATORS:
R. W. GREGORY / C. CLANCEY
RESEARCH INSTITUTION:
MONTANA STATE UNIV., COOP. FISHERY RESEARCH UNIT
BOZEMAN, MT 59715
PRIMARY SPONSOR:
AMAX COAL CO.
DR. M. DOUGLAS SCOTT, MGR. / WESTERN DIVISION ENVIRONMENTAL STUDIES / 205 S. ROSS AVE. / GILLETTE. WY 82716
PRIMARY FUNDING AMOUNT:
FY 75 - 10,350
TIME FRAME:
JUNE, 1975 - DEC., 1976
LOCATION:
MT - SARPY CREEK
ABSTRACT:

PREDICT THE EXTENT TO WHICH AQUATIC RESOURCES MAY BE AFFECTED DURING SURFACE COAL MINING OPERATIONS INCLUDING THE VALUE OF THE RESOURCES. PREPARE RECOMMENDATIONS FOR CONDUCTING MINING ACTIVITIES WITH MINIMAL DAMAGE TO AQUATIC ECOSYSTEMS. (MEAC)

TYPE OF STUDY:
PART OF ´THE POTENTIAL IMPACT OF COAL STRIP MINING ON THE WILDLIFE RESOURCES OF SARPY CREEK DRAINAGE, MT,´ AMAX COAL CO., SERIAL NUMBER 00000344. ERIS QUARTERLY REPORT, VOL. 1, NO. 2, FEBRUARY, 1976.
REPORTS AND PUBLICATIONS:
FIELD DATA COMPLETED. FINAL REPORT DUE DECEMBER, 1976.

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00000627
PROJECT TITLE:
GROUND-LEVEL MEASUREMENTS OF NUCLEI FROM COAL DEVELOPMENT IN THE NORTHERN GREAT PLAINS: BASELINE MEASUREMENTS
PROJECT NUMBER:
10670222
INVESTIGATORS:
BRIANT L. DAVIS
RESEARCH INSTITUTION:
SOUTH DAKOTA SCHOOL OF MINES & TECH., INST. OF ATMOS. SCI.
RAPID CITY, SD 57701
COORDINATOR:
U.S. ERDA, DIV. OF BIOMEDICAL & ENV. RESEARCH
ROBERT W. BEADLE / WASHINGTON, D.C. 20545
PRIMARY SPONSOR:
OLD WEST REGIONAL COMMISSION
DR. KENNETH A. BLACKBURN / HEDDEN-EMPIRE BLDG - SUITE 228 /
BILLINGS, MT 59101
SECONDARY SPONSORS:
U.S. ERDA, DIV. OF BIOMEDICAL & ENV. RESEARCH
PRIMARY FUNDING AMOUNT:
162,750
SECONDARY FUNDING AMOUNTS:
35,000
TIME FRAME:
JUNE 1, 1976 TO JUNE 30, 1978
LOCATION:
MT NE ND SD WY

CT:
JECT OBJECTIVES: THE OBJECTIVES OF THIS RESEARCH PRO-
T ARE CENTERED AROUND THE NEED FOR OBTAINING ACCURATE
EOROLOGICAL AND POLLUTANT BASELINE MEASUREMENTS. THESE
A MAY THEN BE USED BY THE GRANTEE IN A LIMITED ANALYSIS
ER THIS PROJECT OR BY OTHER MORE GENERAL RESEARCH
GRAMS DEALING WITH INADVERTENT WEATHER MODIFICATION
DISCUSSED BELOW. MAJOR OBJECTIVES ARE SUMMARIZED
FOLLOWS: 1. TO CONDUCT MONTHLY SHORT-TERM (2 HOUR)
LONG-TERM (OVERNIGHT) SAMPLING IN A FIVE-STATE REGION
CH WILL PROVIDE DATA ON PARTICULATES AND GASES FOR
ABLISHMENT OF BASELINE CONCENTRATION LEVELS. 2. TO
LYZE THE DATA COLLECTED TO ESTIMATE THE PARTICULATE
GASEOUS CONCENTRATIONS IN THE OBSERVED EFFLUENT THAT
E THE POTENTIAL TO MODIFY WEATHER PROCESSESS IN THE
THERN GREAT PLAINS. 3. TO MAKE PRELIMINARY ESTIMATES
PROJECTIONS OF FUTURE POLLUTANT CONCENTRATIONS AND
IR EFFECTS ON WEATHER PROCESSES IN THE IMPACT AREA.
F STUDY:
S PROJECT IS RELATED TO "GROUND-LEVEL MEASUREMENTS OF
LED FROM COAL DEVELOPMENT IN NORTHERN GREAT PLAINS:
A PLANS FOR DESIGN OF A MONITORING PROGRAM." OLD WEST
IONAL COMMISSION, SERIAL NUMBER 00000128, PRIS QUARTERLY
PORT, VOL. 1, NO. 1, 1975

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NO:
T TITLE:
SIMULATION APPROACH TO THE ANALYSIS OF STRIP-MINING
PACT ON THE ECOSYSTEM WITH EMPHASIS ON WILDLIFE
TIGATORS:
, JAMES E. ELLIS / DR. WILLIAM J. PARTON
RCH INSTITUTION:
LORADO STATE UNIV., NATURAL RESOURCE ECOL. LAB.
RT COLLINS, CO 80523
RY SPONSOR:
S. FISH AND WILDLIFE, WELUT
, KENNETH P. BURNHAM / RM 206, FED. BLDG.
. COLLINS, CO 80521
RY FUNDING AMOUNT:
,572
FRAME:
PT. 1, 1976 TO NOV. 31, 1977
ION:
RTHERN GREAT PLAINS - MT WY ND SD
ACT:
ECTIVE: DEVELOP A SIMULATION MODEL CAPABLE OF PRE-
ICTING A. THE MAJOR ON-SITE ECOSYSTEM EFFECTS OF
RIP-MINING WESTERN COAL, AND; B. THE RESPONSE OF THE
TURBED ECOSYSTEM TO ALTERNATIVE REHABILITATION STRA-
GIES OVER A TEN-YEAR PERIOD.

APPROACH: A. AN EXTENSIVE REVIEW AND COMPILATION OF PERTINENT LITERATURE; B. A SERIES OF MODEL-EXPERIMENTS (SIMULATION GAMING) TO DETERMINE THE APPLICABILITY OF AN EXISTING ECOSYSTEM SIMULATION MODEL (ELM) TO THE STRIP-MINING PROBLEM (ELM IS A PRODUCT OF THE GRASSLANDS BIOME RESEARCH PROGRAM); C. MODIFY AND REDEVELOP THE EXISTING MODEL TO MAKE IT APPLICABLE TO THE CURRENT PROBLEM; D. TEST THE SIMULATION MODEL BY HAVING OUTSIDE EXPERTS SCRUTINIZE IT, BY SENSITIVITY ANALYSIS, AND BY COMPARISON OF MODEL PREDICTIONS TO REAL FIELD DATA.

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00000129
PROJECT TITLE:
A HOUSEHOLD PRODUCTION FUNCTION APPROACH TO THE ESTIMATION OF THE VALUE OF FISH AND WILDLIFE RESOURCES IN SEVEN WESTERN STATES
INVESTIGATORS:
DR. THOMAS CROCKER
RESEARCH INSTITUTION:
UNIV. OF WYOMING, RESOURCE & ENV. ECONOMICS LAB.
LARAMIE, WY
PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
WILLIAM KING / RM. 206, FED. BLDG. / FT. COLLINS, CO
TIME FRAME:
OCT. 1, 1976 TO AUG. 1, 1978
LOCATION:
ND MT ID WY CO UT NM
ABSTRACT:

OBJECTIVES: 1. TO DEVELOP A METHOD OF WILDLIFE VALUATION THAT WILL PRODUCE THE MOST ACCURATE POSSIBLE ESTIMATES OF THE PRESENT VALUE OF WILDLIFE. 2. TO RAPIDLY PRODUCE ESTIMATES OF WILDLIFE VALUES BASED ON SECONDARY DATA. 3. TO PRODUCE MORE ACCURATE ESTIMATES OF WILDLIFE VALUES BASED ON IN-DEPTH INTERVIEWS OF WILDLIFE-RELATED ACTIVITY PARTICIPANTS IN THE WEST. 4. TO PRODUCE EXPENDITURE DATA THAT WILL BE USED IN LATER STUDIES DESIGNED TO ESTIMATE IMPACTS ON REGIONAL ECONOMIES CAUSED BY INCREASES OR DECLINES IN WILDLIFE POPULATIONS IN THE REGION.

APPROACH: THE HOUSEHOLD PRODUCTION FUNCTION APPROACH IS A RECENT DEVELOPMENT IN THE FIELD OF ENVIRONMENTAL VALUATION. IT USES AN EXPENDITURE FUNCTION TO DEVELOP HEDONIC PRICES FOR ENVIRONMENTAL CHARACTERISTICS. SETS OF THESE PRICES ARE THEN REGRESSED AGAINST THE CORRESPONDING QUANTITIES OF THE ENVIRONMENTAL CHARACTERISTIC IN ORDER TO DERIVE A DEMAND FUNCTION. THE AREA UNDER THE DEMAND FUNCTION IS AN ESTIMATE OF THE VALUE OF THE PARTICULAR ENVIRONMENTAL CHARACTERISTIC.

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00000630

PROJECT TITLE:
A BIDDING GAME SURVEY APPROACH TO THE ESTIMATION OF THE VALUE OF FISH AND WILDLIFE RESOURCES IN SEVEN WESTERN STATES

INVESTIGATORS:
DR. RALPH D'ARGE

RESEARCH INSTITUTION:
UNIV. OF WYOMING, RESOURCE & ENV. ECONOMICS LAB.
LARAMIE, WY

PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
WILLIAM KING / RM. 206, FED. BLDG / FT. COLLINS, CO

TIME FRAME:
OCT. 1, 1976 TO AUG. 1, 1978

LOCATION:
ND MT ID WY CO UT NM

ABSTRACT:

OBJECTIVES: 1. TO DEVELOP A BIDDING GAME SURVEY METHOD OF WILDLIFE VALUATION THAT WILL PRODUCE THE MOST ACCURATE POSSIBLE ESTIMATES OF PRESENT WILDLIFE VALUES. THIS SURVEY METHOD SHOULD BE DESIGNED TO ELICIT BOTH ACTIVITY VALUES AND EXISTENCE VALUES ASSOCIATED WITH THE WILDLIFE RESOURCE. 2. TO PRODUCE THE MOST ACCURATE POSSIBLE ESTIMATES OF WILDLIFE VALUES IN THE WEST BASED ON A BIDDING GAME SURVEY.

APPROACH: BIDDING GAME SURVEYS HAVE BEEN USED FOR SEVERAL YEARS TO TRY TO ESTIMATE THE VALUE OF ENVIRONMENTAL RESOURCES. UNTIL RECENTLY THEY HAVE BEEN PLAGUED WITH TWO TYPES OF INACCURACY. STRATEGIC BEHAVIOR AND SPECIFICATION BIAS. RECENT RESEARCH HAS DEVELOPED METHODS OF AVOIDING THESE TWO SOURCES OF ERROR. THIS PROJECT WILL UTILIZE THESE RECENTLY DEVELOPED METHODS OF AVOIDING ERROR IN BIDDING GAMES TO ESTIMATE THE VALUE OF WILDLIFE IN THE STATES OF NORTH DAKOTA, MONTANA, IDAHO, WYOMING, COLORADO, UTAH, AND NEW MEXICO.

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000631
JECT TITLE:
DEVELOPMENT OF ECONOMIC/DEMOGRAPHIC MODEL
JECT NUMBER:
REAP 3-02
ESTIGATORS:
THOR A. HERTSGAARD (NDSU - AG. ECON.)
RICK LUDTKE (UND - SOC.)
STEVE MURDOCK (NDSU - SOC.)
MARK HENRY (UND - ECON.)
EARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., DEPT. OF AG. ECON.
NORTH DAKOTA STATE UNIV., DEPT. OF SOCIOLOGY
FARGO, ND 58102
UNIV. OF NORTH DAKOTA, DEPT. OF ECONOMICS
UNIV. OF NORTH DAKOTA, DEPT. OF SOCIOLOGY
GRAND FORKS, ND 58202
IMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
F. L. LEISTRITZ / STATE CAPITOL BLDG / BISMARCK, ND 58505
IMARY FUNDING AMOUNT:
33,200
E FRAME:
MAR. 1, 1976 TO OCT. 1, 1976
CATION:
ND
STRACT:

THE WORK INVOLVES SYNTHESIS OF AN INTEGRATED MODEL FOR PROJECTING THE ECONOMIC AND DEMOGRAPHIC CONSEQUENCES OF MAJOR RESOURCE DEVELOPMENT PROJECTS (COAL CONVERSION PLANTS, MAJOR IRRIGATION PROGRAMS, ETC.). THE MODEL WILL BE DESIGNED FOR INTERACTIVE USE ON A COMPUTER TERMINAL.

THE MODEL WILL INCORPORATE AN INPUT-OUTPUT SUBMODEL. THIS SUBMODEL HAS BEEN USED PREVIOUSLY IN NORTH DAKOTA AND IT WILL BE MODIFIED TO PROVIDE RELIABLE ESTIMATES OF GROSS BUSINESS VOLUMES OF THE RESPECTIVE SECTORS IN THE STATE´S ECONOMY. HISTORICAL DATA ON GROSS BUSINESS VOLUMES PER WORKER IN THE SECTORS WILL BE USED TO PROVIDE ACCEPTABLE RATIOS FOR TRANSLATING GROSS BUSINESS VOLUMES TO EMPLOYMENT IN THOSE SECTORS. APPLICATIONS OF THE MODEL WILL INVOLVE MULTIPLICATION OF THE INPUT-OUTPUT INTERDEPENDENCE COEFFICIENTS BY THE VECTOR OF LOCAL EXPENDITURES ASSOCIATED WITH THE RESOURCE DEVELOPMENT PROJECT TO YIELD PROJECTED GROSS BUSINESS VOLUMES BY ECONOMIC SECTOR. THESE DOLLAR VOLUMES WILL BE TRANSLATED INTO EMPLOYMENT IN EACH SECTOR BY MEANS OF THE VECTOR OF GROSS BUSINESS VOLUMES PER WORKER. HISTORICAL AND PROJECTED DATA ON EMPLOYMENT IN THE RESPECTIVE OCCUPATIONS WITHIN EACH INDUSTRY WILL BE USED TO DEVELOP OCCUPATION-BY-INDUSTRY MATRICES FOR RELEVANT FUTURE TIME PERIODS. THESE MATRICES WILL BE APPLIED TO THE VECTOR OF EMPLOYMENT TO PROVIDE ESTIMATES OF EMPLOYMENT IN EACH OCCUPATION FOR SELECTED FUTURE TIME PERIODS. DEMOGRAPHIC PROJECTIONS WILL BE MADE BY AGE AND SEX GROUPS FOR BASELINE AND IMPACT PERIODS THROUGH THE USE OF THE COHORT-SURVIVAL TECHNIQUE. THIS TECHNIQUE WILL BE USED WITH SELECTED ASSUMPTIONS FOR EACH OF THE FACTORS OF MIGRATION, FERTILITY, AND MORTALITY. THE INPUT-OUTPUT AND COHORT-SURVIVAL MODELS WILL BE INTEGRATED BY TAKING PROJECTED EMPLOYMENT, BY OCCUPATION AND BY INDUSTRY, RELATIONSHIPS AND INCORPORATING THEM IN THE DEMOGRAPHIC MODEL TO INFER THE LEVELS OF MIGRATION ASSOCIATED WITH BASELINE ECONOMIC PROJECTIONS AND ALTERNATIVE LEVELS OF COAL RESOURCE AND OTHER TYPES OF DEVELOPMENT TO THE YEAR 2000. THE INTEGRATED ECONOMIC-DEMOGRAPHIC MODEL WILL BE TESTED AT COUNTY, REGIONAL AND STATE LEVEL WITH HISTORICAL DATA TO DETERMINE THE EXPECTED PRECISION OF PROJECTIONS OBTAINED FROM IT. SETS OF EQUATIONS ALSO WILL BE DEVELOPED TO PERMIT THE CONSTRUCTION OF SUBROUTINES FOR ESTIMATING THE PUBLIC COSTS AND REVENUES (FISCAL BALANCE) ASSOCIATED WITH ALTERNATIVE LEVELS OF RESOURCE DEVELOPMENT AND SELECTED VALUES FOR SETTLEMENT AND RESIDENCE PATTERN PARAMETERS. WORK ALSO WILL INVOLVE THE DEVELOPMENT OF COEFFICIENTS THAT CAN BE INCORPORATED LATER FOR USE IN LINEAR PROGRAMMING ANALYSES TO OPTIMIZE ALTERNATVIE OBJECTIVE FUNCTIONS.

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00000632
PROJECT TITLE:
IMPLEMENTATION OF ECONOMIC/DEMOGRAPHIC MODEL
PROJECT NUMBER:
REAP 3-01
INVESTIGATORS:
DONALD M. SENECHAL
RESEARCH INSTITUTION:
ARTHUR D. LITTLE, INC.
25 ACORN PARK / CAMBRIDGE, MA 02140
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
F. LARRY LEISTRITZ / STATE CAPITOL / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
82,845
TIME FRAME:
MAR. 1, 1976 TO OCT. 1, 1976
LOCATION:
ND
ABSTRACT:

THE OBJECTIVE OF THIS STUDY IS TO PROVIDE IMPLEMENTATION (COMPUTERIZATION) OF AN ECONOMIC/DEMOGRAPHIC MODEL CAPABLE OF PROJECTING CHANGES IN ECONOMIC OR DEMOGRAPHIC VARIABLES RESULTING FROM VARIOUS CHANGES IN INDUSTRIAL ACTIVITY.

ADL WILL DEVELOP AUTOMATIC DATA PROCESSING SOFTWARE WHICH WILL ALLOW USE IN AN INTERACTIVE MODE. ADL´S APPROACH TO

THE STUDY INVOLVES CONTINUAL INTERACTION OF REAP STAFF, A SOCIAL SCIENCES TEAM, AND POTENTIAL USERS, PERMITTING CONTINUAL MONITORING OF PROGRESS AND DIRECTION. THE E-D MODEL AND MODEL INTERFACE TO BE IMPLEMENTED ARE BASED UPON MODELS CURRENTLY IN USE BY NORTH DAKOTA SCIENTISTS THE SOFTWARE TO IMPLEMENT THIS MODEL WILL BE DESIGNED USING APL. APPROPRIATE SYSTEM SPECIFICATIONS AND TRAINING MANUALS WILL BE PROVIDED BY THE CONTRACTOR. PROVISION IS ALSO MADE FOR TRAINING SESSIONS TO BE HELD IN NORTH DAKOTA WITH POTENTIAL USERS. (REAP)

TYPE OF STUDY:

PART OF ´DEVELOPMENT OF ECONOMIC/DEMOGRAPHIC MODEL,´ REAP 3-02

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00000633

PROJECT TITLE:

ROSEBUD COUNTY, MONTANA, ECONOMIC-DEMOGRAPHIC ANALYSIS, BASELINE AND PROJECTIONS, 1976-1990

PROJECT NUMBER:

C21A

INVESTIGATORS:

ERIC ANDERSON / DR. JAMES A. CHALMERS
MOUNTAIN WEST RESEARCH, INC. / 1739 GRAND AVENUE / BILLINGS, MT 59102

RESEARCH INSTITUTION:

CUMIN ASSOCIATES
BOX 20762, 1739 GRAND AVENUE / BILLINGS, MT 59104

COOPERATOR:

ROSEBUD COUNTY PLANNING BOARD
FORSYTH, MT 59327

PRIMARY SPONSOR:

OLD WEST REGIONAL COMMISSION
JEANNETTE STUDER / FRATT BUILDING 306A / BILLINGS, MT 59101

PRIMARY FUNDING AMOUNT:

9,000

TIME FRAME:

APR. 1, 1976 TO JUNE 1, 1976

STATUS:

COMPLETED JUNE 1, 1976

LOCATION:

MT - ROSEBUD CO.

ABSTRACT:

PROJECT INVOLVED CURRENT AND HISTORIC ANALYSIS OF COUNTY POPULATION AND ECONOMIC SECTORS. AN ANALYSIS OF POTENTIAL DEVELOPMENT INCLUDING COAL STRIP MINING, POWER GENERATION, AND GASIFICATION INCLUDING DEVELOPMENT OF NORTHERN CHEYENNE RESERVATION AREA COAL RESOURCES WAS MADE, AND FOUR ALTERNATIVE SCENARIOS WERE PREPARED PROVIDING EMPLOYMENT AND POPULATION ON A COUNTY AND COMMUNITY SPECIFIC BASIS. A COMPUTER MODEL WAS PREPARED AND CAN BE UPDATED AS NEW MATERIAL BECOMES AVAILABLE.

TYPE OF STUDY:

PART OF THE ROSEBUD COUNTY PLANNING PROGRAM COORDINATED BY ROSEBUD COUNTY PLANNING COORDINATOR, FORSYTH, MT

REPORTS AND PUBLICATIONS:

LIMITED NUMBER OF REPORTS AVAILABLE FOR $7.50 EACH FROM CUMIN ASSOCIATES, P. O. BOX 20762, BILLINGS, MT 59104

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00000634

PROJECT TITLE:

COLLECTION AND ANALYSIS OF LONGITUDINAL DATA ON THE SOCIO-ECONOMIC EFFECT OF MAJOR RESOURCE DEVELOPMENTS

PROJECT NUMBER:

REAP 10-01

INVESTIGATORS:

MARK S. HENRY - ECON. / ARNEY SELBYG - SOC. (UND)
THOR HERTSGAARD - AG. ECON. / ELDON SCHRINER - SOC. (NDSU)

RESEARCH INSTITUTION:

NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
STATE CAPITAL / BISMARCK, ND 58505

PRIMARY SPONSOR:

NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
LARRY LEISTRITZ, ASSOC. DIRECTOR

PRIMARY FUNDING AMOUNT:

296,370

TIME FRAME:

MAY 1, 1976 TO NOV. 30, 1977

LOCATION:

ND - ADAMS, BILLINGS, BOWMAN, BURLEIGH, DIVIDE, DUNN, GOLDEN VALLEY, HETTINGER, MCKENZIE, MCLEAN, MERCER, MORTON, OLIVER, SLOPE, STARK, WILLIAMS COUNTIES

ABSTRACT:

THE PURPOSE OF THIS STUDY IS TO DEVELOP AND IMPLEMENT A METHODOLOGY FOR MONITORING SOCIO-ECONOMIC CHANGES IN THE STATE OF ND. THIS TASK WILL REQUIRE THE DEVELOPMENT OF SURVEY INSTRUMENTS, LONGITUDINAL SOCIOECONOMIC DATA COLLECTION, AND ANALYSIS OF THE DATA. CONCOMITANTLY, THIS METHODOLOGY WILL BE CRITICALLY EVALUATED BY A GROUP OF POTENTIAL USERS OF THE SOCIO-ECONOMIC DATA AND ANALYSIS. THIS USERS´ GROUP WILL INCLUDE LEGISLATORS; CITY, COUNTY, AND STATE PLANNERS; ADMINISTRATORS, RESEARCHERS, AND OTHERS. EXISTING STATE AGENCIES WILL BE ADVISED OF THE RESEARCH PROCEDURES THROUGH A SERIES OF MEETINGS WITH THE RESEARCH FACULTY. ECONOMISTS AT UND AND NDSU WILL COLLECT DATA FROM FARMS, BUSINESS FIRMS, AND HOUSEHOLDS. THIS DATA WILL PROVIDE THE BASIS FOR A REVISION OF THE INPUT-OUTPUT TABLES CURRENTLY BEING IMPLEMENTED FOR REAP BY THESE INVESTIGATORS. THIS WILL PROVIDE A MOVING PICTURE OF CHANGES IN THE ECONOMIC STRUCTURE OF WESTERN NORTH DAKOTA AND ALLOW INCREASED ACCURACY IN PROJECTIONS OF GROSS BUSINESS VOLUME, EMPLOY-

MENT, INCOME, AND THE SOCIO-ECONOMIC PROJECTIONS DERIVED FROM THESE BASIC PROJECTIONS. SIMILARLY, SOCIOLOGISTS AT NDSU AND UND WILL OBTAIN CURRENT INFORMATION ON MIGRATION, FERTILITY, AND MORTALITY FOR A COHORT-SURVIVAL MODEL OF POPULATION CHANGE CURRENTLY BEING IMPLEMENTED FOR REAP. A MAJOR THRUST OF THE WORK PROPOSED WILL BE TO DEVELOP A DATA BASE AND TO ANALYZE PUBLIC SECTOR COSTS AND REVENUES: DEMOGRAPHIC CHARACTERISTICS, UTILIZATION OF PUBLIC SERVICES, AND COMMUNITY SOCIAL BEHAVIOR. INCLUDED IN THE ANALYSIS WILL BE THE DEVELOPMENT OF QUALITY OF LIFE INDICES TO GAUGE THE IMPACT OF ALTERNATIVE LEVELS OF NATURAL RESOURCE DEVELOPMENT. THE DATA WILL BE COLLECTED FROM A REPRESENTATIVE SAMPLE OF HOUSEHOLDS. THIS SURVEY WILL BE INTEGRATED WITH A SURVEY EFFORT CURRENTLY PLANNED BY THE SOCIAL SCIENCE RESEARCH INSTITUTE AT UND UNDER A BUREAU OF LAND MANAGEMENT CONTRACT TO AVOID DUPLICATION OF EFFORT.

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00000635

PROJECT TITLE:
INDIAN LIGNITE MANPOWER PROJECT - RESERVATION MANPOWER STUDY

INVESTIGATORS:
DONALD F. SCHWARTZ (NDSU, DEPT OF COMMUNICATION)

RESEARCH INSTITUTION:
UNITED TRIBES EDUCATIONAL TECHNICAL CENTER
BISMARCK, ND 58501

PRIMARY SPONSOR:
U.S. DEPT. OF COMMERCE, ECONOMIC DEVELOPMENT ADMIN.
GEORGE DELFUOCO / 909 17TH ST. / DENVER, CO 80202

PRIMARY FUNDING AMOUNT:
104,000

TIME FRAME:
AUG. 15, 1975 TO SEPT. 30, 1976

LOCATION:
MT ND - INDIAN RESERVATIONS IN EASTERN MONTANA AND WESTERN NORTH DAKOTA

ABSTRACT:
PROJECT OBJECTIVES: THE OVERALL PROJECT HAS THE FOLLOWING MAIN OBJECTIVES: 1. DETERMINE THE MANPOWER NEEDS (TYPES OF SKILLS AND NUMBERS OF WORKERS) PLANNING DEVELOPMENTS IN NORTH DAKOTA AND MONTANA; 2. DETERMINE THE POTENTIAL AVAILABLE SUPPLY OF INDIAN WORKERS FOR LIGNITE INDUSTRY EMPLOYMENT; 3. FACILITATE ESTABLISHMENT OF TRAINING PROGRAMS FOR LIGNITE INDUSTRY JOBS; 4. ESTABLISH RELATIONS WITH LIGNITE INDUSTRY COMPANIES AND UNIONS TO ENCOURAGE EMPLOYMENT OF INDIAN WORKERS.

RESERVATION MANPOWER STUDY: THE SURVEY RESEARCH PORTION OF THE PROJECT (OBJECTIVE 2) INVOLVES DEPTH INTERVIEWS WITH AN APPROXIMATE 10% SAMPLE (N=1,000) OF ENROLLED TRIBAL MEMBERS BETWEEN THE AGES OF 18 AND 45 WHO ARE LIVING ON WESTERN NORTH DAKOTA AND EASTERN MONTANA RESERVATIONS. THE SURVEY WILL YIELD DATA ON TYPES AND LEVELS OF JOB SKILLS AVAILABLE, BUT, MORE IMPORTANTLY, WILL ASSESS INTEREST IN LIGNITE INDUSTRY JOBS, INTEREST IN TRAINING FOR THESE JOBS, FACTORS FACILITATING AND INHIBITING TRAINING, ATTITUDES TOWARD COMMUTING AND/OR RELOCATING (ESPECIALLY OFF-RESERVATION), ATTITUDES TOWARD UNIONS, JOB SEARCH INFORMATION SOURCES, SOURCES OF INFLUENCE IN JOB DECISIONS, BELIEFS ABOUT LIGNITE INDUSTRY EXPANSION AND RELATED DEMOGRAPHIC FACTORS.

TYPE OF STUDY:
PART OF 'INDIAN LIGNITE MANPOWER PROJECT.' U.S. DEPT. OF COMMERCE, ECONOMIC DEVELOPMENT ADMIN.

REPORTS AND PUBLICATIONS:
FINAL REPORT WILL BE AVAILABLE BY MID-OCTOBER. OBTAIN COPIES FROM INDIAN LIGNITE MANPOWER PROJECT / UNITED TRIBES EDUCATIONAL TECHNICAL CENTER / 3315 SOUTH AIRPORT ROAD / BISMARCK, ND 58501

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00000636

PROJECT TITLE:
HEALTH IMPACTS OF ENVIRONMENTAL POLLUTION IN ENERGY-DEVELOPMENT IMPACTED COMMUNITIES

INVESTIGATORS:
DR. MELVIN H. GOODWIN, JR. / CATHERINE C. LESENEY, M.D. / R. DAVID FLESH

RESEARCH INSTITUTION:
COPLEY INTERNATIONAL CORP.
7617 HERSCHEL AVE. / LA JOLLA, CA 92038

PRIMARY SPONSOR:
U.S. EPA, OFFICE OF ENERGY ACTIVITIES
M. L. HAMMER / 1860 LINCOLN ST. / DENVER, CO 80203

PRIMARY FUNDING AMOUNT:
1976 - 53,736 / 1977 - 42,898
TOTAL 96,634

TIME FRAME:
JAN 5, 1976 TO JUNE 13, 1977

STATUS:
PHASE I - COMPLETED SEPTEMBER 5, 1976

LOCATION:
WY MT UT ND SD CO - FEDERAL REGION VIII

ABSTRACT:
THIS PROJECT WAS DESIGNED TO EVALUATE THE RELATIVE EXTENT OF HEALTH IMPACTS RESULTING FROM DEVELOPMENT OF ENERGY RESOURCES IN FEDERAL REGION VIII. THE FOLLOWING TASKS WERE INVOLVED:
1. APPRAISE THE RELATIVE SIGNIFICANCE OF CURRENT OF POTENTIAL IMPACTS ON COMMUNITIES.
2. DETERMINE THE SCOPE AND ADEQUACY OF HEALTH INFORMATION AVAILABLE IN STATE REPOSITORIES AND SUMMARIZE AVAILABLE RELEVANT MATERIAL.

3. ANALYZE AVAILABLE DATA TO EXPLORE RELATIONSHIPS BETWEEN ENVIRONMENTAL POLLUTION AND HEALTH IMPACTS; ASSESS ECONOMIC ASPECTS OF PROVIDING NEEDED HEALTH, ENVIRONMENTAL, AND COMMUNITY SERVICES.
4. DEVELOP SURVEY PROTOCOLS FOR USE IN SECURING INFORMATION RELATED TO HEALTH IMPACTS FROM SOURCES IN AFFECTED COMMUNITIES.

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00000637
PROJECT TITLE:
COMMUNITY SERVICE AND LAND USE IMPACTS OF ENERGY FACILITIES
PROJECT NUMBER:
84203
INVESTIGATORS:
LAWRENCE SUSSKIND / MICHAEL O'HARE / DONALD PATTERSON (DEPT. OF URBAN STUDIES & PLANNING) / STANLEY WEST (DEPT. OF CIVIL ENG.)
RESEARCH INSTITUTION:
M.I.T., DEPT. OF URBAN STUDIES & PLANNING
77 MASSACHUSETTS AVENUE / CAMBRIDGE, MA 02139
COOPERATOR:
WYOMING GOVERNOR'S OFFICE
NORTH DAKOTA GOVERNOR'S OFFICE
COLORADO GOVERNOR'S OFFICE
TEXAS GOVERNOR'S OFFICE
COORDINATOR:
NATIONAL GOVERNOR'S CONFERENCE
ED HELMINSKI / 1150 17TH STREET N.W. SUITE 702 / WASHINGTON, D.C. 20036
PRIMARY SPONSOR:
U.S. ERDA
PAUL GERHARDT / 20 MASSACHUSETTS AVENUE, N.W. / WASHINGTON, D.C. 20545
PRIMARY FUNDING AMOUNT:
125,000
TIME FRAME:
JUNE 1, 1976 TO MAY 15, 1977
LOCATION:
CO, ND, WY, TX
ABSTRACT:

OUR APPROACH: WE PROPOSE TO LEARN MORE ABOUT SECOND ORDER IMPACTS OF ENERGY FACILITIES (E.G. LAND USE IMPACTS AND COMMUNITY SERVICE COSTS) AND TO DOCUMENT THE VARIOUS MITIGATING STRATEGIES THAT STATE GOVERNMENTS MIGHT PURSUE BY: 1. AN OVERVIEW DOCUMENT DESCRIBING THE RANGE OF SECOND ORDER IMPACTS ASSOCIATED WITH ENERGY FACILITIES OF VARIOUS KINDS. 2. A PAPER SUMMARIZING THE STUDIES OF BOOM TOWNS AND SECOND ORDER IMPACTS ALREADY UNDERTAKEN OR COMMISSIONED BY STATE GOVERNMENTS AROUND THE COUNTRY. 3. A CRITIQUE OF THE FORECASTING METHODS CURRENTLY AVAILABLE OR IN USE TO PREDICT SECOND ORDER IMPACTS ASSOCIATED WITH ENERGY FACILITIES. 4. A CASE STUDY COLLECTION HIGHLIGHTING ALTERNATIVE MITIGATING ROLES FOR STATE GOVERNMENT. CASE STUDIES WOULD FOCUS ON COLORADO, WYOMING, NORTH DAKOTA AND TEXAS. 5. AN ANALYSIS OF ENERGY COMPANY DECISION-MAKING. THIS PAPER WOULD ASSESS THE FACTORS THAT DETERMINE THE PRIVATE ENERGY COMPANIES' WILLINGNESS TO ASSUME WHAT ARE TYPICALLY PUBLIC SERVICE RESPONSIBILITIES IN BOOMTOWN SITUATIONS. 6. A VIDEO EXAMINATION OF SECOND ORDER IMPACTS AND WHAT CAN BE DONE TO MITIGATE THEM.
7. A SUMMARY PAPER OUTLINING FROM THE STATE POINT OF VIEW THE APPROPRIATE FEDERAL ROLE IN MITIGATING SECOND ORDER IMPACTS.

REPORTS AND PUBLICATIONS:
PUBLICATIONS WILL BE AVAILABLE FROM: LABORATORY FOR ARCHITECTURE AND PLANNING, MASSACHUSETTS INST. OF TECHNOLOGY.

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00000638
PROJECT TITLE:
PROJECTIONS OF MONTANA COAL MINING AND ENERGY CONVERSION DEVELOPMENT
INVESTIGATORS:
ARNOLD J. SILVERMAN / THOMAS M. POWER (UM, DEPT. OF GEOLOGY) / RICHARD STROUP (MSU, DEPT. OF AG. ECON. & ECONOMICS
RESEARCH INSTITUTION:
UNIV. OF MONTANA, DEPT. OF GEOLOGY
MISSOULA, MT 59801
MONTANA STATE UNIV., DEPT. OF AG. ECONOMICS AND ECONOMICS
BOZEMAN, MT 59715
PRIMARY SPONSOR:
NATIONAL SCIENCE FOUNDATION, RANN
PRIMARY FUNDING AMOUNT:
37,020
TIME FRAME:
MAY 1, 1975 TO APR. 30, 1976
LOCATION:
MT - FORT UNION BASIN
ABSTRACT:

THIS STUDY WILL PROJECT PROBABLE LEVELS OF COAL DEVELOPMENT IN MONTANA AND ADJACENT AREAS OF THE FORT UNION BASIN OVER THE NEXT 10, 15, AND 25 YEARS. THIS INFORMATION IS NEEDED BY THE SOCIAL AND ECONOMIC RESEARCHERS WHO ARE ATTEMPTING TO DETERMINE THE IMPACT OF INCREASED POPULATION AND INDUSTRIALIZATION ON THE ECONOMIC, SOCIAL, AND POLITICAL ORGANIZATION OF EASTERN MONTANA AND IN FACT BY OTHER PROBLEM AREA WORKGROUPS AS WELL.
THE BASE DATA FROM WHICH PROJECTIONS OF POSSIBLE LEVELS OF MONTANA/FORT UNION COAL DEVELOPMENT WILL PROCEED ARE THE CONTRACTS COAL COMPANIES OPERATING IN THIS REGION

HAVE ALREADY SIGNED. PROJECTIONS BEYOND THESE LEVELS WILL BE BASED ON THE FOLLOWING STUDIES: 1. THE DEMAND FOR ELECTRICITY, 2. ALTERNATIVE ENERGY SOURCES FOR ELECTRIC GENERATION, 3. PRICE AND AVAILABILITY OF NATURAL GAS. 4. OTHER COAL SOURCES, AND 5. COAL AS A RAW MATERIAL FOR THE PRODUCTION OF OTHER ENERGY FORMS AND RELATED MATERIALS. (MEAC)

YPE OF STUDY:

PART OF "AN ASSESSMENT OF THE EFFECTS OF ENERGY DEVELOPMENT IN THE FORT UNION BASIN, MONTANA AND NEIGHBORING STATES." SERIAL NUMBER 00000153, ERIS QUARTERLY REPORT VOL. 1, NO. 1. NOVEMBER, 1975.

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0000639

ROJECT TITLE:

WESTERN REGIONAL ENERGY DEVELOPMENT STUDY: ECONOMICS

NVESTIGATORS:

EDWARD CAZALET

ESEARCH INSTITUTION:

STANFORD RESEARCH INST.
333 RAVENSWOOD AVE.
MENLO PARK, CA 94025

RIMARY SPONSOR:

U.S. COUNCIL ON ENVIRONMENTAL QUALITY / U.S. EPA / U.S. ERDA / NATIONAL SCIENCE FOUNDATION / U.S. DEPT. OF INTERIOR

RIMARY FUNDING AMOUNT:

370,000

IME FRAME:

JAN., 1975 TO NOV., 1976

OCATION:

AZ CO MT NM ND UT WY

BSTRACT:

EXAMINED THE ECONOMICS OF 38 DIFFERENT RESOURCE DEVELOPMENT SCENARIOS OF PHASE I SUPPLY ANALYSIS THAT LOOKS AT CAPITAL INVESTMENTS, OPERATING COSTS FOR EXTRACTING, CONVERTING AND TRANSPORTING ALL FORMS OF ENERGY IN ARIZONA, COLORADO, MONTANA, NEW MEXICO, NORTH DAKOTA, UTAH AND WYOMING. THESE DATA HAVE BEEN PLACED IN A COMPUTER MODEL ALONG WITH THE PROJECTIONS OF U.S. ENERGY DEMAND TO THE YEAR 2000.

YPE OF STUDY:

PART OF THREE PHASE WESTERN REGIONAL ENERGY DEVELOPMENT STUDY.

EPORTS AND PUBLICATIONS:

VOL. 1. STANFORD RESEARCH INSTITUTE. ENERGY MODEL RESULTS, INCLUDING EXECUTIVE SUMMARY.

VOL. 2. STANFORD RESEARCH INSTITUTE. ENERGY MODEL RESULTS: DATA BASE.

WILL BE AVAILABLE FROM NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VA 22161

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00000640

PROJECT TITLE:

WESTERN REGIONAL ENERGY DEVELOPMENT STUDY

INVESTIGATORS:

JOHN S. GILMORE

RESEARCH INSTITUTION:

DENVER RESEARCH INSTITUTE
2135 E. WESLEY / DENVER, CO 80210

PRIMARY SPONSOR:

U.S. COUNCIL ON ENVIRONMENTAL QUALITY
JOYCE KELLY / 722 JACKSON PLACE, N.W. / WASHINGTON, D.C.

PRIMARY FUNDING AMOUNT:

269,997

TIME FRAME:

JAN., 1976 TO DEC., 1976

LOCATION:

NORTHERN GREAT PLAINS AND ROCKY MOUNTAIN STATES

ABSTRACT:

THE PURPOSE OF PHASE III IS TO DEVELOP A METHODOLOGY TO ASSESS THE SOCIOECONOMIC IMPACTS OF WESTERN REGIONAL ENERGY DEVELOPMENT. A METHODOLOGY BASED ON AN I/O MODEL AND AN EXPORT BASE MODEL FOR NW COLORADO OILSHALE DEVELOPMENT WAS DEVELOPED FOR THE PHASE III STUDY. BASELINE DATA WILL BE GATHERED IN 6 STUDY AREAS. TECHNICAL REVIEW PAPERS WHICH DETAIL THE METHODOLOGY WILL BE WRITTEN AND SUBJECTED TO REVIEW BY BOTH TECHNICAL AND USERS' REVIEW PANELS. BASED ON THE REVIEW, THE METHODOLOGY WILL BE MODIFIED AND TESTED IN 3 LOCATIONS. THE RESULTS WILL BE ANALYZED AND A FINAL METHODOLOGY WILL BE DETAILED WHICH WILL INCLUDE ASSESSMENTS OF THE IMPLICATIONS OF THE IMPACTS AND MEASURES FOR MITIGATING THEM. THE APPLICABILITY OF THE METHODOLOGY WILL BE DEMONSTRATED IN ADDITIONAL STUDY AREAS USING SECONDARY DATA.

TYPE OF STUDY:

PART OF THREE PHASE WESTERN REGIONAL ENERGY DEVELOPMENT STUDY.

REPORTS AND PUBLICATIONS:

FINAL REPORTS WILL CONSIST OF: 1. EXECUTIVE SUMMARY; 2. PROJECT REPORT; 3. EXECUTIVE SUMMARY DESCRIBING THE METHODOLOGY; 4. HANDBOOK FOR STATE AND LOCAL OFFICIALS ON THE USE OF THE METHODOLOGY.

ALL EXCEPT PROJECT REPORT WILL BE AVAILABLE FROM CEQ IN JULY, 1977. THE PROJECT REPORT WILL BE AVAILABLE THROUGH NTIS.

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00000641
PROJECT TITLE:
ADJUSTMENT COSTS AND LARGE-SCALE NATURAL RESOURCE TRANSFERS
6784
INVESTIGATORS:
RALPH C. D'ARGE
RESEARCH INSTITUTION:
UNIV. OF WYOMING, DEPT. OF ECONOMICS
LARAMIE, WY 82071
PRIMARY SPONSOR:
RESOURCES FOR THE FUTURE
DR. WALTER O. SPOFFORD, JR.
1755 MASSACHUSETTS AVENUE, N.W.
WASHINGTON, D.C. 20036
PRIMARY FUNDING AMOUNT:
14,062.59
TIME FRAME:
MAR. 1, 1976 TO MAR. 1, 1977
LOCATION:
WY
ABSTRACT:

THE OBJECTIVE OF THIS RESEARCH IS TO DEVELOP AND OPERATIONALIZE AN ECONOMIC MODEL OF ADJUSTMENT COSTS APPROPRIATE FOR ANALYZING LARGE SCALE NATURAL RESOURCE TRANSFERS. ADJUSTMENT COSTS CAN BE DEFINED AS THOSE COSTS, IN ADDITION TO THE USUAL BENEFITS AND COSTS, INDUCED BY A TOO RAPID OR TOO SLOW RATE OF TRANSFER OF A RESOURCE. THE RATE OF CHANGE OF THE TRANSFER IS HYPOTHESIZED TO INFLUENCE THE EFFICIENCY AND ECONOMIC FEASIBILITY OF TRANSFERS. DURING THE NEXT DECADE IT CAN BE ANTICIPATED THAT LARGE SCALE TRANSFERS OF WATER AND OTHER NATURAL RESOURCES WILL OCCUR FROM TRADITIONAL USES TOWARD ENERGY DEVELOPMENT IN THE WESTERN STATES. SUCH LARGE SCALE TRANSFERS IN THE PAST, IN LOCALIZED HOT SPOTS, HAVE INDUCED SEVERE DISLOCATION OF THE EXISTING PATTERNS OF ECONOMIES AND COMMUNITIES. EXAMPLES ARE OBSERVABLE IN THE MANY BOOM TOWN SITUATIONS THAT HAVE ARISEN IN RECENT YEARS. THE RESEARCH WILL INVOLVE THE DEVELOPMENT OF A SEQUENCE OF MODELS IN WHICH CONSISTENT ESTIMATES OF ADJUSTMENT COSTS CAN BE OPERATIONALIZED AND MEASURED. THE MODELS WILL BE PRETESTED ON TWO EXAMPLES OF MAJOR ADJUSTMENT COSTS: THE TRANSFER OF WATER TO THE DAVE JOHNSON STEAM ELECTRIC GENERATION PLANT LOCATED IN GLENDO, WYOMING, AND THE PROPOSED WYOMING-ARKANSAS COAL SLURRY PIPE LINE.

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00000642
PROJECT TITLE:
COMPREHENSIVE ANALYSIS OF ISSUES REGARDING ENERGY RESOURCE DEVELOPMENT ON INDIAN RESERVATIONS
PROJECT NUMBER:
FEA CR-04-60921-00
INVESTIGATORS:
LAWRENCE H. REVZAN
RESEARCH INSTITUTION:
ERNST & ERNST
1225 CONNECTICUT AVE. N.W. / WASHINGTON, D.C. 20036
PRIMARY SPONSOR:
U.S. FEDERAL ENERGY ADMINISTRATION
EDWARD GABRIEL / 12TH AND PENNSYLVANIA AVE. N.W. / WASHINTON, D.C. 20461
PRIMARY FUNDING AMOUNT:
228,452
TIME FRAME:
OCT. 1, 1976 TO SEPT. 15, 1977
LOCATION:
AZ CO NM UT WY MT ND SD OK
ABSTRACT:

OBJECTIVES: CONDUCT AN ANALYSIS OF FINANCIAL, SOCIAL, AND ECONOMIC ASPECTS OF DEVELOPMENT OF ENERGY RESOURCES ON INDIAN LANDS--22 DESIGNATED ENERGY RESOURCE TRIBES. FIVE MAJOR STUDY TASKS: 1. ECONOMIC AND FINANCIAL ANALYSIS; 2. MANAGEMENT ANALYSIS; 3. ASSESSMENT OF EDUCATION AND TRAINING REQUIREMENTS; 4. PROGRAM PLAN FOR INDIAN ENERGY CLEARINGHOUSE; 5. ENVIRONMENTAL IMPACT ANALYSIS. WITH RESPECT TO EACH TASK: 1. DETERMINE FEASIBILITY; 2. DEVELOP IMPLEMENTATION OPTIONS; 3. PROVIDE ALTERNATIVE RECOMMENDATIONS AS REQUIRED; 4. CONDUCT COST ANALYSIS FOR IMPLEMENTATION OF OPTIONS AND/OR ALTERNATIVES. THE ENERGY RESOURCE TRIBES AND THEIR LOCATIONS ARE: HOPI, AZ; NAVAJO, AZ; UTE MOUNTAIN, CO; SOUTHERN UTE, CO; JICARILLA APACHE, NM; YAKIMA, WA; UINTAH & OURAY, UT; SHOSHONE-ARAPAHOE (WIND RIVER), WY; BLACKFEET, MT; CROW, MT; FORT BELKNAP, MT; FORT PECK, MT; NORTHERN CHEYENNE, MT; CHIPPEWA-CREE, MT; FORT BERTHOLD, ND; CHEYENNE RIVER SIOUX, SD; ACOMA PUEBLO, NM; JEMEZ PUEBLO, NM; LAGUNA PUEBLO, NM; SANTA ANA PUEBLO, NM; ZIA PUEBLO, NM; OSAGE, OK.

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00000643
PROJECT TITLE:
LEISURE USE SUBPROJECT OF COLLECTION AND ANALYSIS OF

LONGITUDINAL DATA ON THE SOCIOECONOMIC EFFECTS OF MAJOR RESOURCE DEVELOPMENTS
INVESTIGATORS:
WILLIAM C. DUNAWAY JR.
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, DEPT. OF SOCIOLOGY
UNIVERSITY STATION / GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
STATE CAPITOL BLDG / BISMARCK, ND
TIME FRAME:
APR., 1976 TO OCT., 1977
LOCATION:
ND
ABSTRACT:

THIS PROJECT HAS THREE OBJECTIVES: THE FIRST IS TO EXAMINE DATA THAT HAS BEEN COLLECTED CONCERNING LEISURE USE AND DETERMINE THE EXTENT TO WHICH EXPANSION HAS BEEN CONSIDERED INTERNALLY IN THE MODEL.

THE SECOND OBJECTIVE IS TO COLLECT DATA ON DIFFERENT RECREATIONAL AND CULTURAL DEMANDS OF NEWLY ARRIVED AS WELL AS OLDER RESIDENTS IN THE STUDY AREA.

THE THIRD OBJECTIVE IS TO ANALYZE THESE DATA AND PROVIDE THEM TO THE USER GROUPS IN A FORM THAT MAXIMIZES THEIR UTILITY IN THE EFFORTS AT COMMUNITY PREPARATION FOR NEW RESIDENTS, AVOIDING UNNECESSARY DESTRUCTION OF PRESENT RECREATIONAL AND CULTURAL OPPORTUNITIES FOR THE SAKE OF RESOURCE DEVELOPMENT, AND USING THE IMPACT OF COAL DEVELOPMENT FOR IMPROVEMENT OF THE CULTURAL AND RECREATIONAL OPPORTUNITIES.

METHODOLOGY: DATA ON EXISTING FACILITIES FROM STATE, LOCAL, AND PRIVATE ORGANIZATIONS WILL BE COMPILED. OTHER NEEDED DATA WILL BE COLLECTED BY THE FIELD WORKERS THROUGH SURVEYS OF A SAMPLE OF HOUSEHOLDS AND HOUSEHOLD HOUSEHOLD MEMBERS. THESE DATA WILL THEN BE EVALUATED WITH RESPECT TO THE OBJECTIVE CRITERIA OUTLINED ABOVE.

APPLICATION OF WORK: THIS PROJECT WILL PROVIDE THE USER WITH AN EXAMINATION OF THE USE OF LEISURE TIME BY THE PEOPLE OF THE STATE AND SHOW THE NECESSARY IMPROVEMENTS THAT ARE NECESSARY FOR THE EXPANSION OF THE ECONOMY THROUGH THE COAL DEVELOPMENT OF AN AREA. (REAP)

TYPE OF STUDY:
PART OF 'COLLECTION AND ANALYSIS OF LONGITUDINAL DATA ON THE SOCIOECONOMIC EFFECTS OF MAJOR RESOURCE DEVELOPMENTS' NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
689

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00000644
PROJECT TITLE:
NOISE AND EFFECTS - 'PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT'
PROJECT NUMBER:
4852
INVESTIGATORS:
MASON H. SOMERVILLE / PALMER REITEN
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIVERSITY STATION / GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NATURAL GAS PIPELINE CO. OF AMERICA
122 S. MICHIGAN AVE. / CHICAGO, IL 60603
TIME FRAME:
MARCH, 1975 TO SEPT., 1976
LOCATION:
ND - DUNN CO.
ABSTRACT:

OBJECTIVE: THE OBJECTIVE IS TO EVALUATE THE NOISE FROM PLANT CONSTRUCTION AND OPERATION AND FROM MINING OPERATIONS TO ASCERTAIN THE POSSIBLE EFFECTS, IF ANY, EXCESSIVE NOISE COULD HAVE ON INHABITANTS WITHIN OR SURROUNDING A PROPOSED 250 MILLION STANDARD CUBIC FOOT PER DAY LURGI COAL GASIFICATION FACILITY.

METHODOLOGY: A SUMMARY OF THE KNOWN EFFECTS OF NOISE POLLUTION WAS GENERATED AS A BASELINE FOR COMPARISON OF VARIOUS LEVELS OF NOISE POLLUTION. VARIOUS MANUFACTURING ACTIVITIES WERE SAMPLED AND THE PROPOSED PLANT WAS EVALUATED FOR NOISE PRODUCTION. FINALLY EXISTING AND PROPOSED FEDERAL AND STATE LEGISLATION WAS EVALUATED TO DETERMINE THE EFFECTS ON PLANT ACTIVITY.

APPLICATION OF WORK: CAN BE USED TO DETERMINE THE EFFECTS OF NOISE ON THE LOCAL AREA RESULTING FROM THE LOCATION OF A LURGI COAL GASIFICATION PLANT IN THE AREA. (REAP)

TYPE OF STUDY:
PART OF 'PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT PROJECT 4852,' NATURAL GAS PIPELINE CO. OF AMERICA.

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00000645
PROJECT TITLE:
HEALTH STUDY PHASE I & II
INVESTIGATORS:
DENNIS HADDOW
RESEARCH INSTITUTION:
MONTANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES
HELENA, MT 59601
PRIMARY SPONSOR:
U.S. EPA REGION VIII
1860 LINCOLN ST / DENVER, CO 80203
PRIMARY FUNDING AMOUNT:
20,000

TIME FRAME:
NOV. 1, 1976 TO JULY 1, 1977
LOCATION:
MT - SILVER BOW CO., DEER LODGE CO.
ABSTRACT:
MONTANA'S RESPIRATORY DISEASE RATE IS HIGHER THAN THE NATIONAL AVERAGE. THIS STUDY WILL LOOK AT CAUSES OF AND MORTALITY FROM RESPIRATORY DISEASES IN MONTANA, FOCUSING ON SILVER BOW AND DEER LODGE COUNTIES. CAUSES WILL BE RELATED TO EXISTING INDUSTRIAL DEVELOPMENT. THE POTENTIAL IMPACT OF PROPOSED ENERGY DEVELOPMENT ON RESPIRATORY DISEASE WILL ALSO BE CONSIDERED. (MEAC)

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00000646
PROJECT TITLE:
WATER AS A PARAMENTER FOR DEVELOPMENT OF ENERGY RESOURCES IN THE UPPER GREAT PLAINS
PROJECT NUMBER:
ND-3339
INVESTIGATORS:
F. LARRY LEISTRITZ / DONALD F. SCOTT
RESEARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., DEPT. OF AGRICULTURAL ECONOMICS
FARGO, NORTH DAKOTA 58102
PRIMARY SPONSOR:
U.S. DEPT. OF INTERIOR, OFFICE OF WATER RESEARCH & TECH
WASHINGTON, D.C.
PRIMARY FUNDING AMOUNT:
84,000
TIME FRAME:
SEPT., 1975 TO SEPT., 1977
LOCATION:
ND - SOUTHWESTERN AREA
ABSTRACT:
OBJECTIVES: DETERMINE THE EFFECT OF ALTERNATIVE PATTERNS OF COAL-BASED ENERGY DEVELOPMENT OF: 1. ECONOMIC ACTIVITY, LABOR MARKETS, POPULATION GROWTH AND SETTLEMENT PATTERNS, AND THE ECONOMIC WELL-BEING OF UPPER GREAT PLAINS RESIDENTS; 2. THE USE OF LAND AND WATER RESOURCES; 3. THE COSTS AND REVENUES OF STATE AND LOCAL GOVERNMENTS AND IDENTIFY ALTERNATIVE STRATEGIES FOR THE DELIVERY OF NEEDED SERVICES IMPLIED BY THE RESULTS OF OBJECTIVE 1. APPROACH: A LINEAR PROGRAMMING MODEL WILL BE EMPLOYED TO DETERMINE THE OPTIMUM PATTERNS OF COAL RESOURCE DEVELOPMENT FOR ALTERNATIVE OBJECTIVE FUNCTION CRITERIA. AN INPUT-OUTPUT MODEL OF SOUTHWESTERN NORTH DAKOTA WILL BE USED TO ANALYZE THE IMPACTS OF ALTERNATIVE PATTERNS OF DEVELOPMENT. ESTIMATES OF CHANGE IN GROSS BUSINESS VOLUME, EMPLOYMENT AND POPULATION WILL BE USED IN DETERMINING CHANGES IN WATER AND LAND USE, AND CHANGES IN COSTS AND REVENUES OF GOVERNMENTAL UNITS. (REAP)

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00000647
PROJECT TITLE:
HUMAN IMPACTS OF ENERGY DEVELOPMENT: A PANEL DESIGN
PROJECT NUMBER:
YA-512-CT6-87
INVESTIGATORS:
DR. RICHARD LUEDTKE
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, SOCIAL SCIENCE RESEARCH INST.
GRAND FORKS, ND 58201
PRIMARY SPONSOR:
U.S. BUREAU OF LAND MANAGEMENT
PAUL B. MYERS / BOX 30157 / BILLINGS, MT 59107
PRIMARY FUNDING AMOUNT:
1976 - 36,000; 1977 - 36,000
TOTAL 72,000
TIME FRAME:
JAN. 1, 1976 TO DEC. 31, 1977
LOCATION:
ND - DUNN, MCLEAN, MERCER, OLIVER COUNTIES
ABSTRACT:
THIS PROJECT WILL MEET SOCIOLOGICAL INFORMATION NEEDS GENERATED BY THE WEST CENTRAL NORTH DAKOTA ENERGY DEVELOPMENT EIS BEING PREPARED BY BLM AND THE STATE OF NORTH DAKOTA. THE FIRST YEAR'S EFFORT (1-1-76 THROUGH 12-31-76) INVOLVED A STRUCTURED INTERVIEW APPROACH. SAMPLE SIZE WAS 467. STRATIFIED RANDOM SELECTION OF HOUSEHOLDS WAS THE SAMPLING PROCEDURE. MEASUREMENT WAS, FOR THE MOST PART, CONFINED TO CLOSED-ENDED RESPONSE CATEGORIES.
THE FOLLOWING TOPICS WERE ADDRESSED IN THE INTERVIEWS: 1. PERCEPTION, KNOWLEDGE AND BEHAVIOR RELATIVE TO RAPID INDUSTRIALIZATION; 2. PERCEPTION, KNOWLEDGE AND BEHAVIOR RELATIVE TO NATURAL RESOURCES; 3. SATISFACTION AND IDENTIFICATION WITH PLACE AND LOCAL SERVICES FACILITIES; AND 4. OUTDOOR RECREATION BEHAVIOR AND EXPRESSIONS OF NEEDS.
THE SECOND YEAR'S EFFORT WILL BE LESS STRUCTURED BUT WILL CONTINUE TO FOCUS ON LOCAL RESIDENTS' ORIENTATION TO COAL/WATER DEVELOPMENT.
TYPE OF STUDY:
PART OF 'NORTH DAKOTA REGIONAL EIS'
REPORTS AND PUBLICATIONS:
FIRST MAJOR REPORT IS DUE JANUARY 1, 1977.

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0000648

ROJECT TITLE:
A SOCIOECONOMIC IMPACT ANALYSIS OF THE PROPOSED SOUTH HAYSTACK COAL MINE
ROJECT NUMBER:
76-35
NVESTIGATORS:
EDWARD F. HARVEY
ESEARCH INSTITUTION:
BICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 SOUTH MADISON ST. / DENVER, CO. 80209
OORDINATOR:
ECOLOGY CONSULTANTS, INC.
RUSSELL MOORE / 1716 HEATH PARKWAY / FORT COLLINS, CO
RIMARY SPONSOR:
ROCKY MOUNTAIN ENERGY CO.
RICHARD ANDREWS / 4704 HARLAN ST. / DENVER, CO 80212
RIMARY FUNDING AMOUNT:
15,900
IME FRAME:
MAY 1, 1976 TO DEC. 15, 1976
OCATION:
WY - UINTA, LINCOLN, AND SWEETWATER COUNTIES
BSTRACT:

THIS IS A SOCIOECONOMIC IMPACT ANALYSIS FOR A PROPOSED COAL MINE TO BE LOCATED IN SOUTHWESTERN WYOMING. THE REPORT IS BASED ON PRIMARY AND SECONDARY DATA COLLECTION. INTERVIEWS WITH PUBLIC OFFICIALS, LOCAL BUSINESS LEADERS AND ENERGY COMPANY OFFICIALS REPRESENT MAJOR INPUTS.

PROJECTIONS OF ECONOMIC AND GROWTH INDICATORS FOR UINTA COUNTY, SCHOOL DISTRICT NO. 1, AND SEVERAL COMMUNITIES ARE DEVELOPED. EMPLOYMENT FOR BASIC AND NON-BASIC SECTORS, POPULATION, HOUSING NEEDS BY TYPE, SCHOOL ENROLLMENT, RETAIL SALES AND ASSESSED VALUATION ARE FORECAST.

TWO SETS OF PROJECTIONS ARE DEVELOPED--WITH AND WITHOUT THE PROPOSED SOUTH HAYSTACK MINE.

THE PRESENT AND FUTURE CAPACITY OF COMMUNITY FACILITIES AND SERVICES IS ADDRESSED. FUTURE CAPITAL REQUIREMENTS ARE ESTIMATED.

PUBLIC OFFICIALS AND LOCAL BUSINESS LEADERS WERE INTERVIEWED TO GAIN INSIGHT INTO THE LOCAL QUALITY OF LIFE AND THE OPINIONS TOWARD COAL DEVELOPMENT.

STEPS TO MINIMIZE POSSIBLE NEGATIVE SOCIOECONOMIC IMPACTS ARE ALSO EXAMINED.

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00000649

PROJECT TITLE:
A STUDY OF THE EFFECTS OF FOUR PROPOSED COAL MINES: SOCIAL, ECONOMIC, & PUBLIC
PROJECT NUMBER:
76-45
INVESTIGATORS:
THEODORE D. BROWNE / DENNIS W. DONALD
RESEARCH INSTITUTION:
BICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 SO. MADISON ST. / DENVER, CO 80209
COOPERATOR:
WESTINGHOUSE ELECTRIC CORP., ENV. SERVICES
COORDINATOR:
WESTINGHOUSE ELECTRIC CORP.
B. T. WAHLQUIST / P.O. BOX 1899 / PITTSBURGH, PA 15230
PRIMARY SPONSOR:
ROCKY MOUNTAIN ENERGY CO.
JAMES SHAW / 4704 HARLAN ST. / DENVER, CO. 80212
PRIMARY FUNDING AMOUNT:
80,000
TIME FRAME:
APR. 15, 1976 TO DEC. 15, 1976
LOCATION:
WY - CARBON AND SWEETWATER COUNTIES
ABSTRACT:

THIS STUDY PRESENTS A SOCIOECONOMIC IMPACT ANALYSIS FOR FOUR COAL MINES PROPOSED FOR WYOMING'S WASHAKIE BASIN. THIS PROGRAM EXAMINES ECONOMIC, SOCIAL AND PUBLIC SECTOR FINANCIAL IMPACTS OF EACH OF THE FOUR COAL MINES INDIVIDUALLY AND AS A UNIT.

THE REPORT IS BASED MOSTLY ON PRIMARY DATA COLLECTION INCLUDING 120 INTERVIEWS WITH COMMUNITY LEADERS AND 350 INTERVIEWS WITH LOCAL RESIDENTS. PROJECTIONS OF EMPLOYMENT, POPULATION, HOUSING REQUIREMENTS, SCHOOL ENROLLMENT, RETAIL SALES AND ASSESSED VALUATION ARE PROVIDED.

TWO SCENARIOS, WITH AND WITHOUT THE FOUR PROPOSED COAL MINES, ARE DEVELOPED. BY THEMSELVES, THESE COAL MINES WILL NOT CREATE 'BOOM TOWN' CONDITIONS.

THE PRESENT AND FUTURE ADEQUACY OF COMMUNITY FACILITIES AND SERVICES IS ADDRESSED. CAPITAL REQUIREMENTS ARE SET FORTH.

LOCAL RESIDENTS AND COMMUNITY LEADERS WERE INTERVIEWED TO LEARN THEIR PERCEPTIONS OF THE LOCAL QUALITY OF LIFE AND THE EFFECTS OF COAL DEVELOPMENT. GENERALLY, THEY VIEW COAL DEVELOPMENT POSITIVELY.

OVER THE LONG TERM, DEVELOPMENT OF THE FOUR PROPOSED COAL MINES SHOULD HAVE A POSITIVE EFFECT ON THE CARBON COUNTY AND SCHOOL DISTRICT NO. 1 BUDGETS.

MEASURES TO MITIGATE POSSIBLE NEGATIVE SOCIOECONOMIC IMPACTS ARE ALSO EXAMINED.

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C0000650
PROJECT TITLE:
THE ENERGY BOOM IN SOUTHWEST WYOMING: OBSERVATIONS AND RECOMMENDATIONS CONCERNING COMMUNITIES IMPACTED BY ENERGY PROJECTS PREPARED BY A FEDERAL TEAM IN RESPONSE TO A REQUEST BY GOVERNOR ED HERSCHLER
INVESTIGATORS:
JACK COX (USDA) / GERRY COAN / DONALD KRUMM / ROBERT GOETZ / L. O. HOUSTON, JR. (HUD)
RESEARCH INSTITUTION:
U.S. DEPT. OF HOUSING & URBAN DEVELOPMENT
WASHINGTON, D.C. 20410
PRIMARY SPONSOR:
U.S. DEPT. OF HOUSING & URBAN DEVELOPMENT
TIME FRAME:
JUNE 1, 1976 TO CONTINUING
STATUS:
OBSERVATIONS AND RECOMMENDATIONS COMPLETED JULY 1, 1976
LOCATION:
WY - SOUTHWEST AREA
ABSTRACT:

THE ENERGY BOOM IN SOUTHWEST WYOMING INCLUDES THE OBSERVATIONS AND RECOMMENDATIONS OF A HUD-USDA TEAM WHICH, AT THE REQUEST OF GOVERNOR ED HERSHLER, EXAMINED THE PROBLEMS OF RAPID GROWTH IN THE SOUTHWEST PORTION OF THAT STATE. IN ADDITION TO THE SIGNIFICANTLY INCREASED EMPLOYMENT STEMMING FROM ENERGY-RELATED MINING, THE AREA IS ALSO ATTEMPTING TO ACCOMMODATE SHORT-TERM, INTENSIVE GROWTH RESULTING FROM CONSTRUCTION OF ELECTRIC GENERATION PLANTS.

THE REPORT NOTES: 1. ALMOST ALL OF THE SMALL MUNICIPALITIES AND COUNTIES IN THE REGION ARE ALREADY HEAVILY BURDENED AND HAVE LITTLE CAPACITY TO HANDLE INCREASED GROWTH WITHOUT FURTHER DETERIORATION IN THE QUALITY OF LIFE FOR PERMANENT AND TRANSIENT RESIDENTS ALIKE. 2. THE 17,000 SQUARE MILE THREE COUNTY AREA COMPRISE A SINGLE LABOR-HOUSING-COMMUTATION REGION. THERE IS NOT, HOWEVER, A SINGLE MULTI-PURPOSE REGIONAL STRUCTURE TO DETERMINE GROWTH AND NONGROWTH COMMUNITIES; TO MAKE POSSIBLE THE CONSTRUCTION WITHIN THE NEXT THREE YEARS OF THE DESPERATELY NEEDED PERMANENT HOUSING; AND TO INTEGRATE HOUSING, TRANSPORTATION, HEALTH AND HOSPITAL, ECONOMIC DEVELOPMENT, WATER QUALITY AND SOLID WASTE PLANNING AND IMPLEMENTATION. 3. STRONG STATE LEADERSHIP DURING THE NEXT TWO YEARS WILL BE ESSENTIAL, ESPECIALLY IN DETERMING THE FISCAL IMPACTS OF MINING AND CONSTRUCTION BASED GROWTH ON THE SEVERAL LOCAL GOVERNMENTS UNDER DIFFERENT ALTERNATIVE DEVELOPMENT LOCATIONS AND STRATEGIES.

REPORTS AND PUBLICATIONS:
THE ENERGY BOOM IN SOUTHWEST WYOMING. JUNE-JULY, 1976. PUBLICATION OUT OF PRINT BUT XEROX COPIES ARE AVAILABLE IN LIMITED QUANTITIES TO AGENCIES.

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C0000651
PROJECT TITLE:
RAPID GROWTH FROM ENERGY PROJECTS - IDEAS FOR STATE AND LOCAL ACTION: A PROGRAM GUIDE
INVESTIGATORS:
HUBERT VAN DYKE / EMMETT TURNER / DAVID C. WILLIAMS
RESEARCH INSTITUTION:
U.S. DEPT. OF HOUSING & URBAN DEVELOPMENT
WASHINGTON, D. C. 20410
PRIMARY SPONSOR:
U.S. DEPT. OF HOUSING & URBAN DEVELOPMENT
MELVIN W. WACHS / WASHINGTON, D.C. 20410
SECONDARY SPONSORS:
U.S. FEDERAL ENERGY ADMINISTRATION
PRIMARY FUNDING AMOUNT:
5500
TIME FRAME:
JUNE 1, 1975 TO MARCH, 1976
STATUS:
COMPLETED MARCH, 1976.
LOCATION:
NORTHERN GREAT PLAINS; ROCKY MOUNTAIN STATES; APPALACHIA; NATIONWIDE APPLICATION
ABSTRACT:

THE PURPOSES OF THIS PUBLICATION ARE SIMPLE: 1. TO SHOW WHAT THE COMMUNITY IMPACTS OF ENERGY PROJECTS ARE LIKELY TO TO BE; 2. TO SHARE IDEAS FOR ACTION AMONG COMMUNITIES, BASED ON ACTUAL EXPERIENCES; AND 3. TO POINT OUT SOURCES OF OF HELP: FOR INFORMATION, PLANNING AND FINANCIAL ASSISTANCE.

TO BE OF VALUE IN PLANNING FOR AND RESPONDING TO ENERGY PROJECT IMPACTS, THE EMPHASIS OF THIS PUBLICATION IS:

ON IDEAS FOR ACTION. THERE HAVE BEEN MANY STUDIES OF THE IMPACTS, ACTUAL AND PROJECTED. WHAT IS NEEDED NOW ARE IDEAS ON WHAT TO DO TO PREPARE FOR THE IMPACTS.

ON THE CONSTRUCTION PHASE. IT IS IMMEDIATE, RAPID, MASSIVE, YET TEMPORARY. CONVENTIONAL PLANNING, MANAGEMENT AND FINANCING ARE NOT GEARED TO THIS PATTERN.

ON SMALLER COMMUNITIES. THE RATE OF GROWTH IN THESE COMMUNITIES IS MUCH HIGHER THAN IT WOULD BE IN LARGER ONES. AND THE SMALLER COMMUNITIES GENERALLY HAVE MORE LIMITED RESOURCES AT THE START.

ON GENERALLY TRANSFERRABLE INFORMATION. RESPONSES TO ONE TYPE OF PROJECT MAY BE USED FOR OTHERS. THERE IS A CONCENTRATION ON WESTERN COAL PROJECTS IN THIS BOOK. THAT IS

WHERE THE LARGEST NUMBER OF CASES ARE PRESENTLY AVAILABLE.

REPORTS AND PUBLICATIONS:

RAPID GROWTH FROM ENERGY PROJECTS - IDEAS FOR STATE AND LOCAL ACTION: A PROGRAM GUIDE.
AVAILABLE FROM U.S. DEPT. OF HUD, COMMUNITY PLANNING & DEVELOPMENT, ROOM 7230, WASHINGTON, D.C. 20410

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00000652

PROJECT TITLE:

AN ANALYSIS OF THE APPLICABILITY OF THE PRODUCTION OF SYNTHETIC LIQUID FUELS FROM COAL IN MONTANA

INVESTIGATORS:

JOHN MCBRIDE

RESEARCH INSTITUTION:

UNIV. OF MONTANA
MISSOULA, MT 59801

PRIMARY SPONSOR:

U.S. FEDERAL ENERGY ADMINISTRATION

PRIMARY FUNDING AMOUNT:

3,500

TIME FRAME:

MAY 1, 1976 TO JULY 15, 1976

STATUS:

COMPLETED JULY 15, 1976

LOCATION:

MT

ABSTRACT:

THIS ANALYSIS WILL INCLUDE A DESCRIPTION OF THE TECHNOLOGY OF COAL LIQUEFACTION, ECONOMICS OF THE TECHNOLOGY AND APPLICABILITY OF LIQUEFACTION IN MONTANA. (MEAC)

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00000653

PROJECT TITLE:

MONTANA TASK FORCE ON COAL GASIFICATION

INVESTIGATORS:

JAMES R. HODGE / ANDY KISSNER

RESEARCH INSTITUTION:

MONTANA INTERNATIONAL TRADE COMMISSION
BUTTE, MT 59701

COORDINATOR:

MONTANA INTERNATIONAL TRADE COMMISSION

PRIMARY SPONSOR:

MONTANA INTERNATIONAL TRADE COMMISSION
ELECTRIC POWER RESEARCH INSTITUTE
U.S. DEPT. OF COMMERCE, ECONOMIC DEVELOPMENT ADMIN.
U.S. FEDERAL ENERGY ADMINISTRATION
OLD WEST REGIONAL COMMISSION

PRIMARY FUNDING AMOUNT:

303,146

TIME FRAME:

JUNE 1, 1975 TO CONTINUING

ABSTRACT:

IN JUNE, 1975, GOVERNOR THOMAS JUDGE AND THE MONTANA CONGRESSIONAL DELEGATION ESTABLISHED THE MONTANA TASK FORCE ON COAL GASIFICATION TO INVESTIGATE VARIOUS METHODS OF ALLEVIATING MONTANA´S POTENTIAL NATURAL GAS PROBLEM. THE TASK FORCE FUNCTIONS AS AN INVESTIGATIVE INFORMATION GATHERING AND EVALUATION SOURCE TO DETERMINE THE VIABILITY OF COAL GASIFICATION AS A FUEL RESOURCE FOR MONTANA. THE RESULTS OF ACTIVITIES ENGAGED IN BY THE TASK FORCE WILL INDICATE TO APPROPRIATE DECISION MAKERS THE POTENTIALS AND PROBLEMS ASSOCIATED WITH THE PRODUCTION OF SYNTHETIC GAS AND/OR SYNTHETIC LIQUID FUELS IN MONTANA.

THE GASIFICATION FEASIBILITY PROGRAM THAT THE TASK FORCE IS CURRENTLY PURSUING DIVIDES THE PROJECT INTO SEVEN ACTIVITY AREAS, FIVE OF WHICH ARE LISTED SEPARATELY UNDER THE FOLLOWING PROJECT TITLES: TECHNOLOGY PROCESS SELECTION STUDY. LURGI PROCESS EVALUATION, ANALYSIS OF OFF-SITE LURGI REQUIREMENTS, COST/DEMAND ANALYSIS. SITE TRADE-OFF STUDY. (MEAC)

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00000654

PROJECT TITLE:

ANALYSIS OF OFF-SITE LURGI REQUIREMENTS

INVESTIGATORS:

AL WEISE

RESEARCH INSTITUTION:

LUMMUS CORP.
1515 BROAD ST. / BLOOMFIELD, NJ 07003

COORDINATOR:

MONTANA TASK FORCE ON COAL GASIFICATION
ANDY KISSNER / MONTANA INTERNATIONAL TRADE COMMISSION /
BUTTE, MT 59701

PRIMARY SPONSOR:

MONTANA INTERNATIONAL TRADE COMMISSION
OLD WEST REGIONAL COMMISSION
U.S. FEDERAL ENERGY ADMINISTRATION
U.S. DEPT. OF COMMERCE, ECONOMIC DEVELOPMENT ADMIN.
ELECTRIC POWER RESEARCH INSTITUTE

TIME FRAME:

APR. 1, 1976 TO JULY 1, 1976

STATUS:

COMPLETED AUG. 10, 1976

ABSTRACT:

DETERMINATION OF OFF-SITE, NON-LURGI REQUIREMENTS NECESSARY FOR THE DEVELOPMENT OF A LURGI HIGH BTU GASIFICATION FACILITY. THEIR WORK WILL INCLUDE MANPOWER, CAPITAL COST. AND RESOURCE REQUIREMENTS FOR NON-LURGI OPERATING UNITS. (MEAC)

TYPE OF STUDY:

PART OF ´MONTANA TASK FORCE ON COAL GASIFICATION.´ MONTANA INTERNATIONAL TRADE COMMISSION.

REPORTS AND PUBLICATIONS:

PROJECT REPORT TO BE PUBLISHED IN THE FINAL REPORT OF THE

MONTANA TASK FORCE ON COAL GASIFICATION.

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00000655
PROJECT TITLE:
TECHNOLOGY PROCESS SELECTION STUDY
RESEARCH INSTITUTION:
DRAVO CORP.
ONE OLIVER PLAZA / PITTSBURGH, PA 15222
COORDINATOR:
MONTANA TASK FORCE ON COAL GASIFICATION
ANDY KISSNER / MONTANA INTERNATIONAL TRADE COMM. / BUTTE, MT 59701
PRIMARY SPONSOR:
MONTANA INTERNATIONAL TRADE COMMISSION
ELECTRIC POWER RESEARCH INSTITUTE
U.S. DEPT. OF COMMERCE, ECONOMIC DEVELOPMENT ADMIN.
U.S. FEDERAL ENERGY ADMINISTRATION
OLD WEST REGIONAL COMMISSION
PRIMARY FUNDING AMOUNT:
48,646
TIME FRAME:
MAY 24, 1976 TO OCT. 24, 1976
ABSTRACT:

BEFORE CONSIDERATION CAN BE GIVEN TO THE SELECTION OF AN APPROPRIATE COAL CONVERSION PROCESS, TECHNOLOGY STATE OF THE ART MUST BE COMPARED AND CONTRASTED WITH SPECIFIC REQUIREMENTS AND PROBLEMS IMPOSED BY THE MONTANA ENVIRONMENT. THE TASK FORCE´S FINAL DECISION AND RECOMMENDATION WILL REQUIRE EXTENSIVE JUSTIFICATION AND DOCUMENTATION OF THE SUITABILITY OF A FIRST GENERATION GASIFICATION PROCESS VERSUS THE FINANCIAL INCENTIVES WHICH SECOND GENERATION OR DEMONSTRATION SCALE HIGH BTU GASIFICATION PROCESSES OFFER. ADDITIONALLY, COAL LIQUEFACTION AND OIL/GAS PROCESSES WILL BE REVIEWED SO THAT THE DECISIONS REACHED BY THE TASK FORCE REFLECT THE MOST SUITABLE TECHNOLOGY AVAILABLE AT THIS TIME TO MEET ANTICIPATED MONTANA REQUIREMENTS.

DRAVO CORP. WILL CONDUCT AN EVALUATION OF THE RELATIVE MERITS OF VARIOUS SYNFUEL TECHNOLOGIES. (MEAC)

TYPE OF STUDY:
PART OF ´MONTANA TASK FORCE ON COAL GASIFICATION.´ MONTANA INTERNATIONAL TRADE COMMISSION.
REPORTS AND PUBLICATIONS:
PROJECT REPORT TO BE PUBLISHED IN FINAL REPORT OF THE MONTANA TASK FORCE ON COAL GASIFICATION.

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00000656
PROJECT TITLE:
COST/DEMAND ANALYSIS
INVESTIGATORS:
DON BRELSFORD
RESEARCH INSTITUTION:
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
BUTTE, MT 59701
COORDINATOR:
MONTANA TASK FORCE ON COAL GASIFICATION
ANDY KISSNER / MONTANA INTERNATIONAL TRADE COMMISSION / BUTTE, MT 59701
PRIMARY SPONSOR:
U.S. FEDERAL ENERGY ADMINISTRATION
PRIMARY FUNDING AMOUNT:
20,000
TIME FRAME:
MAY 1, 1976 TO JUNE 30, 1976
STATUS:
COMPLETED JUNE 30, 1976
ABSTRACT:

PRECEDING ANY DETERMINATION OF MONTANA GASIFICATION VIABILITY, THE RELATIONSHIP BETWEEN FUEL PRODUCTION COST AND MARKETABILITY MUST BE EXPLORED. THIS STUDY WILL EXAMINE THE RELATIONSHIPS THAT EXIST BETWEEN GAS COSTS, SUPPLY AND DEMAND AND WILL YIELD AN ESTIMATE OF THE MARKETABILITY OF THE PRODUCTS GENERATED IN A 1985-1995 TIME FRAME. (MEAC)

TYPE OF STUDY:
PART OF ´MONTANA TASK FORCE ON COAL GASIFICATION.´ MONTANA INTERNATIONAL TRADE COMMISSION.
REPORTS AND PUBLICATIONS:
PROJECT REPORT TO BE PUBLISHED IN FINAL REPORT OF THE MONTANA TASK FORCE ON COAL GASIFICATION.

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00000657
PROJECT TITLE:
SITE TRADE-OFF STUDY
INVESTIGATORS:
DON BRELSFORD
RESEARCH INSTITUTION:
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
BUTTE, MT 59701
COORDINATOR:
MONTANA TASK FORCE ON COAL GASIFICATION
ANDY KISSNER / MONTANA INTERNATIONAL TRADE COMMISSION / BUTTE, MT 59701

PRIMARY SPONSOR:

U.S. FEDERAL ENERGY ADMINISTRATION

PRIMARY FUNDING AMOUNT:

30,000

TIME FRAME:

JULY 1, 1976 TO SEPT. 30, 1976

ABSTRACT:

THIS STUDY WILL EXAMINE THE MERITS OF SITING AT A MINE MOUTH LOCATION VERSUS A SITE CURRENTLY POSSESSING AN INFRASTRUCTURE BUT LOCATED IN AN AREA REMOTE TO COAL AND WATER RESOURCES.

A MINE MOUTH SITE HAS THE ADVANTAGE OF SHORT HAUL DISTANCES WHICH FACILITATE THE TRANSPORTATION TO THE FEEDSTOCK AND IN TURN MINIMIZES RESOURCE TRANSPORTATION COST. THE REMOTE SITE HAS HOUSING, SEWERS, ROAD SYSTEMS AND AMENITIES AND WOULD, THEREFORE, LESSEN THE SOCIOECONOMIC PROBLEMS ARISING FROM THE DEVELOPMENT OF AN INDUSTRIAL FACILITY WHICH WOULD REQUIRE A RELOCATION OF WORK FORCES TO THAT AREA. THE UTILIZATION OF THE REMOTE SITE WOULD MINIMIZE SOCIAL IMPACTS AND LIFE-STYLE MODIFICATIONS, AND WOULD, ADDITIONALLY, AVOID THE DEVELOPMENT OF A ´COMPANY TOWN´ TOTALLY DEPENDENT UPON PROJECT DURATION AND PERFORMANCE.

CONVERSELY, A MINE MOUTH LOCATION WOULD REQUIRE THE CONSTRUCTION OF A COMMUNITY INCLUDING, BUT NOT LIMITED TO, HOUSING, ROADS, SEWER SYSTEMS, RESIDENTIAL POWER SOURCE AND TRANSMISSION LINES AND OTHER AMENITIES THAT ARE REQUIRED BY ANY POPULATION. FURTHER, ONCE THE PLANT´S LIFE HAS BEEN REALIZED, IN MOST CASES, NO ECONOMIC INCENTIVE REMAINS TO CONTINUE LIVING IN THAT PARTICULAR AREA. THIS TYPE OF ´BOOM TOWN´ DEVELOPMENT CAN BE AVOIDED IF A REMOTE SITE CAN BE SHOWN TO BE SOCIALLY AND ECONOMICALLY COMPETITIVE WITH A MINE MOUTH SITE. (MEAC)

TYPE OF STUDY:

PART OF ´MONTANA TASK FORCE ON COAL GASIFICATION,´ MONTANA INTERNATIONAL TRADE COMMISSION

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00000658

PROJECT TITLE:

LURGI PROCESS EVALUATION

INVESTIGATORS:

JOHN GALLAGHER

RESEARCH INSTITUTION:

AMERICAN LURGI CORP.
377 RTE 17 / HASBROUCK HEIGHTS, NJ 07604

COORDINATOR:

MONTANA TASK FORCE ON COAL GASIFICATION
ANDY KISSNER / MONTANA INTERNATIONAL TRADE COMMISSION / BUTTE, MT 59701

PRIMARY SPONSOR:

MONTANA INTERNATIONAL TRADE COMMISSION
ELECTRIC POWER RESEARCH INSTITUTE
U.S. DEPT. OF COMMERCE, ECONOMIC DEVELOPMENT ADMIN.
U.S. FEDERAL ENERGY ADMINISTRATION
OLD WEST REGIONAL COMMISSION

PRIMARY FUNDING AMOUNT:

20,000

TIME FRAME:

MAR. 1, 1976 TO JUNE 1, 1976

STATUS:

COMPLETED JUNE 1, 1976

ABSTRACT:

THE AMERICAN LURGI CORP. HAS BEEN CONTRACTED TO EVALUATE THEIR PROCESS TAKING INTO ACCOUNT UNIQUE FEATURES AND CONSTRAINTS FOR SYNTHETIC NATURAL GAS PRODUCTION IN MONTANA. THIS STUDY WILL PROVIDE THE TASK FORCE WITH BOTH A CONCEPTUAL DESIGN AND PRELIMINARY ENGINEERING SPECIFICATIONS FOR A 180 MILLION CUBIC FOOT PER DAY FACILITY, UTILIZING MONTANA LIGNITE. (MEAC)

TYPE OF STUDY:

PART OF ´MONTANA TASK FORCE ON COAL GASIFICATION,´ MONTANA INTERNATIONAL TRADE COMMISSION

REPORTS AND PUBLICATIONS:

PROJECT REPORT TO BE PUBLISHED IN FINAL REPORT OF THE MONTANA TASK FORCE ON COAL GASIFICATION

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00000659

PROJECT TITLE:

THE MONTANA ENERGY AND MHD RESEARCH AND DEVELOPMENT INSTITUTE (MERDI)

PROJECT NUMBER:

E-49-1811

INVESTIGATORS:

D. P. H. HASSELMAN / DON BRELSFORD / W. O. ENNIS / DR. JERRY D. PLUNKETT

RESEARCH INSTITUTION:

MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
P. O. BOX 3809 / BUTTE, MT 59701

PRIMARY SPONSOR:

U.S. ERDA
BILL COLLINS / WASHINGTON, D. C.

PRIMARY FUNDING AMOUNT:

3,164,000

TIME FRAME:

APRIL 1, 1975 TO CONTINUING

LOCATION:

MT - BUTTE AREA

ABSTRACT:

THE MONTANA ENERGY AND MHD RESEARCH AND DEVELOPMENT INSTITUTE WAS ESTABLISHED TO DO ORIGINAL RESEARCH FOR MHD DEVELOPMENT UNDER AN ERDA CONTRACT. THE INSTITUTE HAS SUB-

CONTRACTED SOME OF THE TASKS TO THE MONTANA COLLEGE OF MINERAL SCIENCE AND TECHNOLOGY AND MONTANA STATE UNIVERSITY. IN-HOUSE RESEARCH AND DEVELOPMENT CONSISTS OF CDIF DEVELOPMENTAL ENGINEERING (W. D. ENNIS), MATERIALS RESEARCH (D. P. HASSELMAN), AND ENVIRONMENTAL ENGINEERING (DON BRELSFORD).

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00000660
PROJECT TITLE:
COLOR INFRARED BASELINE STUDY
PROJECT NUMBER:
151-85-0
INVESTIGATORS:
ROBERT E. CARROLL
RESEARCH INSTITUTION:
ECOLOGICAL CONSULTING SERVICE
AIRPORT WAY BLDG. WEST / 1300 BLOCK CEDAR ST. / HELENA, MT
59601
PRIMARY SPONSOR:
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
DONALD L. BRELSFORD / 225 IDAHO / BUTTE, MT 59701
PRIMARY FUNDING AMOUNT:
PROPRIETARY
TIME FRAME:
AUG. 1, 1976 TO SEPT. 30, 1976
STATUS:
COMPLETED SEPT. 30, 1976
LOCATION:
MT - SILVER BOW CO.
ABSTRACT:
PROJECT INVOLVES DEVELOPING A RECTIFIED PHOTOBASE OF A 16-SQUARE-MILE STUDY AREA NEAR BUTTE, MONTANA, PROVIDING CONTOURS AND INTERPRETING FALSE COLOR INFRARED AERIAL FILM TO CHARACTERIZE VEGETATION. THE STUDY AREA IS THE SITE OF A PROPOSED POWER PLANT.

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00000661
PROJECT TITLE:
TRANSPORTATION COMPONENT OF THE MONTANA ENERGY POLICY STUDY
INVESTIGATORS:
DR. PAUL E. POLZIN
RESEARCH INSTITUTION:
UNIV. OF MONTANA, BUREAU OF BUSINESS & ECONOMIC RESEARCH
MISSOULA, MT 59801
PRIMARY SPONSOR:
MONTANA ENERGY ADVISORY COUNCIL
STATE CAPITOL / HELENA, MT 59601
PRIMARY FUNDING AMOUNT:
6,000
TIME FRAME:
SEPT. 1, 1976 TO DEC. 30, 1976
LOCATION:
MT
ABSTRACT:
THE STUDY WILL INCLUDE AN INVENTORY AND DESCRIPTION OF EXISTING ENERGY TRANSPORTATION SYSTEMS IN MONTANA, INCLUDING ELECTRICAL TRANSMISSION SYSTEMS, OIL AND GAS PIPELINES, AND COAL TRANSPORTATION SYSTEMS. IN ADDITION, THE STUDY WILL ANALYZE THE ECONOMIC COSTS AND BENEFITS OF POTENTIAL NEW ENERGY TRANSPORTATION SYSTEMS FOR MONTANA, INCLUDING AC VS. DC TRANSMISSION OF ELECTRICITY, EXPORT OF COAL VIA SLURRY AND/OR RAILROAD, ARCTIC GAS PIPELINE VS. ALCAN PIPELINE FOR ALASKAN NATURAL GAS, NORTHERN TIER PIPELINE VS. TRANSPROVINCIAL PIPELINE FOR FEEDSTOCK FOR MONTANA REFINERIES, AND ANY ADDITIONAL PLANNED OR PROPOSED ENERGY TRANSPORTATION SYSTEMS FOR MONTANA.
REPORTS AND PUBLICATIONS:
FINAL REPORT DUE NOVEMBER 30, 1976. AVAILABLE FROM MEAC.

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00000662
PROJECT TITLE:
ANACONDA-HAMILTON TRANSMISSION LINE STUDY: ENVIRONMENTAL IMPACT STATEMENT
INVESTIGATORS:
ALBERT TSAO
RESEARCH INSTITUTION:
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
HELENA, MT 59601
PRIMARY SPONSOR:
MONTANA POWER CO.
SECONDARY SPONSORS:
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
PRIMARY FUNDING AMOUNT:
47,625
SECONDARY FUNDING AMOUNTS:
26,500
TIME FRAME:
DEC. 31, 1974, TO SEPT., 1976
LOCATION:
MT - ANACONDA TO HAMILTON
ABSTRACT:
STUDY OF NEED AND ENVIRONMENTAL COMPATABILITY OF A 161 KV POWER TRANSMISSION LINE FROM ANACONDA TO HAMILTON, MONTANA, PROPOSED BY THE MONTANA POWER COMPANY. (MEAC)
REPORTS AND PUBLICATIONS:
DRAFT OUT JULY 1, 1976. FINAL OUT OCT., 1976. AVAILABLE

FROM MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION

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00000663
PROJECT TITLE:
LIAISON WITH THE IN SITU COAL GASIFICATION PROGRAM FOR THE ELECTRIC UTILITY INDUSTRY
PROJECT NUMBER:
6600
INVESTIGATORS:
ROBERT GUNN
RESEARCH INSTITUTION:
UNIV. OF WYOMING, DEPT. OF MINERAL ENGINEERING
P. O. BOX 3435, UNIV. STATION / LARAMIE, WY 82070
PRIMARY SPONSOR:
ELECTRIC POWER RESEARCH INSTITUTE
PRIMARY FUNDING AMOUNT:
75,500
TIME FRAME:
JULY 1, 1975 TO JUNE 30, 1978
LOCATION:
WY GX
ABSTRACT:
MONITORING AND OBJECTIVE ANALYSIS OF IN SITU GASIFICATION WORK THROUGHOUT THE COUNTRY WHICH ALSO PERMITS: 1. TRAINING OF STUDENTS IN THE ENERGY FIELD, AND 2. DEVELOPMENT OF DESIGN METHODS AND EQUATIONS NECESSARY TO EVALUATE FIELD TEST DATA.

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00000664
PROJECT TITLE:
FELLOWSHIP PROGRAMS FOR MINERAL FUEL DEVELOPMENT
PROJECT NUMBER:
8073
INVESTIGATORS:
DONALD L. STINSON
RESEARCH INSTITUTION:
UNIV. OF WYOMING, DEPT. OF MINERAL ENGINEERING
P.O. BOX 3435, UNIV. STATION / LARAMIE, WY 82070
PRIMARY SPONSOR:
NATIONAL SCIENCE FOUNDATION
PRIMARY FUNDING AMOUNT:
42,250
TIME FRAME:
JULY 1, 1975 TO OCT. 1, 1976
LOCATION:
WY
ABSTRACT:
TO FUND FIVE, 12-MONTH FELLOWSHIPS IN MINERAL ENGINEERING TO BE DIRECTED AT RESEARCH AND TRAINING IN THE AREA OF MINERAL FUEL DEVELOPMENT.

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00000665
PROJECT TITLE:
THE EFFECTS OF SOLVENT CHARACTERISTICS ON WYODAK COAL LIQUEFACTION
PROJECT NUMBER:
8223
INVESTIGATORS:
HOWARD F. SILVER (MIN ENG) / ROBERT J. HURTUBISE (CHEM)
RESEARCH INSTITUTION:
UNIV. OF WYOMING, DEPT. OF MINERAL ENGINEERING
UNIV. OF WYOMING, DEPT. OF CHEMISTRY
LARAMIE, WY 82071
PRIMARY SPONSOR:
U.S. ERDA
PRIMARY FUNDING AMOUNT:
191,000
TIME FRAME:
MAY 1, 1976 TO JULY 31, 1978
LOCATION:
WY - WYODAK MINE
ABSTRACT:
PURPOSE: TO CORRELATE PHYSICAL AND/OR CHEMICAL PROPERTIES OF COAL LIQUEFACTION REACTION THROUGH EXPERIMENTAL COAL LIQUEFACTION STUDIES. AS A SECONDARY OBJECTIVE, MEASUREMENTS OF THE SULFUR, NITROGEN, AND ASPHALTENE CONTENTS OF THE SOLVENTS COULD BE MADE TO DETERMINE WHAT EFFECT, IF ANY, THE SOLVENTS COULD HAVE ON COAL DESULFURIZATION, DENITRIFICATION, AND DEASPHALTING REACTIONS.

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00000666
PROJECT TITLE:
CHEMISTRY OF LIGNITE LIQUEFACTION
PROJECT NUMBER:
FE-2211-1
INVESTIGATORS:
VIRGIL I. STENBERG
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, DEPT. OF CHEMISTRY
UNIVERSITY STATION / GRAND FORKS, ND 58202
PRIMARY SPONSOR:
U.S. ERDA
PRIMARY FUNDING AMOUNT:
551,000
TIME FRAME:
JAN., 1976 TO DEC., 1979

OCATION:
ND
STRACT:

OBJECTIVE. TO DEVELOP COMPUTER-ASSISTED RAPID ANALYSIS OF LIGNITE AND ITS CONVERSION PRODUCTS; TO TEST 6-10 CATALYSTS (COMMERCIALLY AVAILABLE) FOR THE UPGRADING OF SOLVENT REFINED LIGNITE INTO PREMIUM LIQUID FUELS; TO USE MODEL COMPOUNDS FOR THE STUDY OF THE CO-STEAM (CARBON MONOXIDE-WATER) MECHANISM OF REDUCTION; TO USE ELECTRON SPIN RESONANCE AND INFRARED SPECTROSCOPY TO STUDY THE MECHANISM OF THE CO-STEAM PROCESS.

METHODOLOGY: REDUCTIONS ARE DONE IN THE BATCH AUTOCLAVES IN THE UND CHEMISTRY DEPARTMENT. INSTRUMENTAL ANALYSIS OF THE LIGNITE AND THE SOLVENT REFINED LIGNITE AND ITS CONVERSION PRODUCTS.

APPLICATION OF WORK: THE PRODUCTION OF GASOLINE FROM NORTH DAKOTA LIGNITE. (REAP)

EPORTS AND PUBLICATIONS:

CHEMISTRY OF LIGNITE LIQUEFACTION. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION. QUARTERLY REPORT 1. APRIL, 1976.

CHEMISTRY OF LIGNITE LIQUEFACTION. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION. QUARTERLY REPORT 2. JULY, 1976.

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0000667
ROJECT TITLE:
STUDY OF OXYGEN STOICHIOMETRY AND ANALYSIS OF COAL, LIGNITE, AND THEIR DERIVATIVES
NVESTIGATORS:
ALEXIS VOLBORTH
SEARCH INSTITUTION:
NORTH DAKOTA STATE UNIV., DEPT. OF CHEMISTRY
NORTH DAKOTA STATE UNIV., DEPT. OF GEOLOGY
FARGO, ND 58102
IMARY SPONSOR:
U.S. ERDA
IMARY FUNDING AMOUNT:
365,200
ME FRAME:
JAN., 1976 TO DEC., 1977
STRACT:

OBJECTIVE ESTABLISHMENT OF A FAST-NEUTRON ACTIVATION GEOCHEMICAL LABORATORY DEDICATED TO RAPID DETERMINATION OF OXYGEN, SILICON AND NITROGEN, IN SOLID FUELS, ROCKS, ETC. AND DEVELOPMENT OF RAPID METHODS OF ANALYSIS FOR SULFUR, ALUMINUM, IRON, MAGNESIUM, LEAD ANTIMONY, CADMIUM, ARSENIC, SELENIUM AND MERCURY IN COAL, LIGNITE, ASH, ETC., BY COMBINATION OF FAST-NEUTRON AND THERMAL-NEUTRON (REACTOR) ACTIVATION; AN ATTEMPT TO IMPROVE, AND TO RE-EVALUATE THE CLASSICAL METHODS OF COAL ANALYSIS. WE WILL ALSO SELECT THE ELEMENTS THAT ARE OF PARTICULAR CONCERN, TOGETHER WITH THOSE THAT CAN ALSO BE DETERMINED BY FAST-NEUTRON METHODS AND TO DEVELOP TECHNIQUES THAT AFFORD THE BEST COMPROMISE BETWEEN PRECISION AND TIME NEEDED FOR THE DETERMINATION. IN ADDITION, METHODS WILL BE SOUGHT FOR IMPROVING SENSITIVITY FOR CADIUM, MERCURY, ARSENIC AND LEAD TO THE POINT THAT LEVELS COMMONLY FOUND IN COAL RELATED PRODUCTS ARE DETERMINABLE.

METHODOLOGY: CONSISTS OF ELEVEN TASK PLANS WHICH SHALL BE SUMMARIZED AS FOLLOWING: TASK I, FROM JANUARY, 1976 LASTS 6-12 MONTHS WILL CONSIST OF PURCHASE AND INSTALLATION OF FAST-NEUTRON GENERATOR AT NORTH DAKOTA STATE UNIVERSITY. TASK II, FROM JULY, 1976, LASTING 6 MONTHS IS CONTINUED STUDY OF OXYGEN DISTRIBUTION IN COAL, LIGNITE, SHALE, AND ASH SAMPLES. TASK III FROM 3-6 MONTHS STARTING JANUARY, 1977 IS THE STUDY OF POSSIBILITIES FOR DETERMINING SULFUR IN COAL AND LIGNITE. TASK IV FOR 6 MONTHS FROM MARCH, 1977, WILL BE STUDIES OF OXYGEN TO LEARN MORE ABOUT COAL AT VARIOUS TEMPERATURES AND ATMOSPHERES. MAY, 1977, LASTING 6-12 MONTHS IS TASK V WHERE CORRELATION OF TRUE OXYGEN CONTENT OF LIGNITE AND INTERMEDIATE PRODUCTS IN THE COSTEAM PROCESS. TASK VI STARTING JANUARY, 1977, FOR 6-12 MONTHS WILL BE THE STUDY OF OXYGEN IN COAL LIQUEFACTION. TASK VII IN JANUARY, 1977, FOR 6 MONTHS WILL BE CORRELATION STUDIES OF "TRUE" OXYGEN WITH THE CALORIFIC VALUES OF COAL. TASK VIII FROM MARCH, 1977, FOR 3-6 MONTHS WILL STUDY "MINERAL MATTER" VERSUS "ASH CONTENT" BY CORRELATING "TRUE" OXYGEN CONTENT OF PARENT MATERIAL, ASH AND INTERIM PRODUCTS. TASK IX FROM JULY, 1976, FOR 6-12 MONTHS WILL BE DETERMINATION OF SILICON IN COAL, LIGNITE, AND COAL ASH. TASK X FROM 3-6 MONTHS STARTING SEPTEMBER-OCTOBER, 1976 WILL BE THE STUDY OF COAL ASH AND LTA ASH. TASK XI FROM 12-24 MONTHS STARTING DECEMBER, 1976, WILL SEE FURTHER DEVELOPMENT OF METHODS FOR DETERMINATION OF TRACE ELEMENTS IN COAL, LIGNITE AND COAL ASH.

APPLICATION OF WORK: TO DEVELOP A NOVEL SYSTEM FOR RAPID COAL ANALYSIS BY COMBINING FAST-NEUTRON ACTIVATION WITH REACTOR ACTIVATION AND VACUUM X-RAY FLUORESCENCE. THE STUDIES PROPOSED ARE AN ATTEMPT TO DEVELOP SUCH A SYSTEM TO PROVE ITS APPLICABILITY TO COAL RESEARCH AND TO SHOW THE ADVANTAGES OF ACTIVATION AND SIMULTANEOUS DETERMINATION OF THESE ELEMENT IN MINUTES RATHER THAN HOURS AND DAYS REQUIRED BY THE PRESENTLY USED CLASSICAL METHODS. (REAP)

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0000668
PROJECT TITLE:
EMISSION SPECTRUM AND PROCESS WATER REQUIREMENTS -

'PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT'
PROJECT NUMBER:
4852
INVESTIGATORS:
MASON H. SOMERVILLE / JIM ELDER / TOM MAY
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIVERSITY STATION / GRAND FORKS, ND 58202
PRIMARY SPONSOR:
NATURAL GAS PIPELINE CO. OF AMERICA
122 S. MICHIGAN AVE. / CHICAGO, IL 60603
TIME FRAME:
MARCH, 1975 TO SEPT., 1976
LOCATION:
ND - DUNN CO.
ABSTRACT:

OBJECTIVE: THE OBJECTIVE OF THIS PROJECT IS TO ESTIMATE THE MAGNITUDE OF THE PROCESS WATER REQUIREMENTS AND THE PLANT EMISSION SPECTRUM OF A 250 MILLION STANDARD CUBIC FOOT PER DAY LURGI COAL GASIFICATION PLANT COMPLEX TO PRODUCE SUBSTITUTE NATURAL GAS FROM THE LIGNITE COAL RESERVES OF DUNN COUNTY, NORTH DAKOTA.

METHODOLOGY: IN ORDER TO ANALYZE THE EMISSION SPECTRUM AND OBTAIN AN APPROXIMATION OF THE PROCESS WATER AND LIGNITE COAL REQUIREMENTS, A FLOW DIAGRAM WAS LAID OUT FOR THE MAJOR PROCESSING UNITS. ENGINEERING ESTIMATES WERE MADE, AND THE SOLID, GASEOUS, LIQUID AND THERMAL EFFLUENTS DISCHARGED TO THE SURROUNDINGS.

APPLICATION OF WORK: CAN BE APPLIED AS AN AID TO THE EVALUATION OF LURGI COAL GASIFICATION PLANTS IN NORTH DAKOTA. (REAP)

TYPE OF STUDY:
PART OF 'PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT PROJECT 4852,' NATURAL GAS PIPELINE CO. OF AMERICA.

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C0000669
PROJECT TITLE:
IMPACTS OF SYNTHETIC LIQUID FUELS DEVELOPMENT
PROJECT NUMBER:
EGU 3505
INVESTIGATORS:
DR. EDWARD M. DICKSON / ROBERT M. RODDEN
RESEARCH INSTITUTION:
STANFORD RESEARCH INST.
MENLO PARK, CA 94025
PRIMARY SPONSOR:
U.S. ERDA
JEROME HINKLE / 20 MASSACHUSETTS AVE., N.W. / WASHINGTON, D. C. 20545
SECONDARY SPONSORS:
U.S. EPA, OFFICE OF ENERGY MINERALS AND INDUSTRY
GARY FOLEY / WASHINGTON, D.C. 20460
PRIMARY FUNDING AMOUNT:
280,000
TIME FRAME:
JULY, 1974 TO JUNE, 1976
STATUS:
COMPLETED JUNE 1, 1976
LOCATION:
WY MT CO ND NM - COLORADO RIVER, UPPER MISSOURI RIVER BASIN, CAMPBELL CO., WY
ABSTRACT:

THIS STUDY ASSESSES THE IMPACTS OF THE DEVELOPMENT OF SYNTHETIC LIQUID FUELS FROM COAL AND OIL SHALE; THE FUELS CONSIDERED ARE SYNTHETIC CRUDE OILS FROM COAL AND OIL SHALE AND METHANOL FROM COAL. KEY ISSUES EXAMINED IN DETAIL ARE THE TECHNOLOGY AND ALL OF ITS RESOURCE REQUIREMENTS, NET ENERGY ANALYSES OF THE TECHNOLOGICAL OPTIONS. A MAXIMUM CREDIBLE IMPLEMENATION SCHEDULE, LEGAL MECHANISMS FOR ACCESS TO COAL AND OIL SHALE RESOURCES, FINANCING OF A SYNTHETIC LIQUID FUELS INDUSTRY, DECISION MAKING IN THE PETROLEUM INDUSTRY, GOVERNMENT INCENTIVE POLICIES, LOCAL AND NATIONAL ECONOMIC IMPACTS. ENVIRONMENTAL EFFECTS OF STRIP MINING, URBANIZATION OF RURAL AREAS, AIR POLLUTION CONTROL, WATER RESOURCES AND THEIR AVAILABILITY, AND POPULATION GROWTH AND BOOM TOWN EFFECTS IN PREVIOUSLY RURAL AREAS.

REPORTS AND PUBLICATIONS:
E. M. DICKSON, ET AL.
IMPACTS OF SYNTHETIC LIQUID FUEL DEVELOPMENT, VOLUMES I & II
EPA 600/7-76-004 A.E. ERDA 128-1 AND 128-2

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00000670
PROJECT TITLE:
LIMITS AND COST SENSITIVITY OF ALTERNATE PARTING HANDLING METHODS
INVESTIGATORS:
THOMAS E. FINCH
RESEARCH INSTITUTION:
MONTANA COLLEGE OF MINERAL SCIENCES & TECHNOLOGY
BUTTE, MT 59701
PRIMARY SPONSOR:
U.S. BUREAU OF MINES, SPOKANE MINING RESEARCH CENTER
E. 315 MONTGOMERY / SPOKANE, WA 99207
PRIMARY FUNDING AMOUNT:
41,410
TIME FRAME:
DEC. 1, 1975 TO DEC. 1, 1976
LOCATION:
MT
ABSTRACT:

OBJECTIVE: GENERATE A COMPUTER PROGRAM TO LOOK AT COST SENSITIVITY OF DIFFERENT METHODS OF PARTING HANDLING. PHYSICAL LIMITS OF APPLICABLE MACHINERY WILL ALSO BE CONSIDERED. (MEAC)

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00000671
PROJECT TITLE:
DEVELOPMENT OF A SIMULATION MODEL FOR EVALUATION OF SURFACE MINING OPERATIONS AND RECLAMATION PLANS
PROJECT NUMBER:
12-11-204-12 (43)
INVESTIGATORS:
DAVID F. GIBSON
RESEARCH INSTITUTION:
MONTANA STATE UNIV., DEPT. OF IND. ENG. & COMPUTER SCIENCE
BOZEMAN, MT 59715
PRIMARY SPONSOR:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
ED BURROUGHS / MONTANA STATE UNIVERSITY / BOZEMAN, MT 59715
PRIMARY FUNDING AMOUNT:
FY 77 - 45,100
TIME FRAME:
JAN. 1, 1976 TO DECEMBER 31, 1978
LOCATION:
MT ND WY - INTERMOUNTAIN AREA
ABSTRACT:

THE ULTIMATE OBJECTIVE OF THE STUDY IS TO PROVIDE THE LAND MANAGER WITH COMPREHENSIVE TOOL FOR USE IN EVALUATING ALTERNATIVE SURFACE COAL MINE PLANS. EVALUATION WOULD INCLUDE THE EXAMINATION OF PROPOSED MINE PLANS RELATIVE TO PRODUCTIVITY AND ENVIRONMENTAL EFFECTS AND THE RESULTING TRADE-OFFS WITH RESPECT TO MINE DESIGN. FINAL OUTPUT OF THE STUDY WILL BE A COMPUTERIZED MINE PLANNING SYSTEM. SPECIFIC OBJECTIVES: 1. USE EXISTING INVENTORY DATA ON TOPOGRAPHY, SOILS, GEOLOGY, ETC. TO MODEL THE PROPOSED MINING SITE; 2. DEVELOP AND USE TECHNIQUES TO OPTIMIZE THE LOCATION OF SPOIL AND TOPSOIL STOCKPILES USING THE CONSTRAINTS OF MATERIAL HANDLING CAPABILITIES OF THE EQUIPMENT AND A GIVEN RECLAMATION PLAN; 3. INTEGRATE INFORMATION ON THE HYDROLOGIC, ERODIBILITY, AND MASS STABILITY CHARACTERISTICS OF THE SPOILS AND TOPSOIL MATERIALS INTO THE OPTIMUM LOCATION OF SPOIL PILES; 4. VIEW CUTTING PLANE PROFILES FOR ANY PORTION OF THE MINED SITE; 5. SIMULATE AND VIEW (PLAN VIEW AND CUTTING PLANE PROFILES) THE RESULTS OF REPLACEMENT OF SPOILS AND TOPSOIL ACCORDING TO A RECLAMATION PLAN; AND; 6. DESIGN A SIMPLE, ECONOMICAL SYSTEM FOR EVALUATING MINING AND LAND RECLAMATION PLANS.

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00000672

PROJECT TITLE:

PALEONTOLOGIC SITES IN NORTH DAKOTA

PROJECT NUMBER:

REAP 9-01-1

INVESTIGATORS:

F. D. HOLLAND, JR.

RESEARCH INSTITUTION:

UNIV. OF NORTH DAKOTA, DEPT. OF GEOLOGY
GRAND FORKS, ND 58202

PRIMARY SPONSOR:

NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG / BISMARCK, ND 58202

PRIMARY FUNDING AMOUNT:

7,100

TIME FRAME:

MAY 1, 1976 TO DEC. 31, 1976

LOCATION:

ND

ABSTRACT:

A LIST OF PALEONTOLOGIC SITES AND MAPS PORTRAYING THOSE SITES WILL BE COMPILED FROM THE LITERATURE (PUBLISHED REPORTS AND RELIABLE UNPUBLISHED REPORTS). THE FOLLOWING KINDS OF INFORMATION WILL BE IDENTIFIED IN THE LIST AND PLOTTED BY SECTION. TOWNSHIP AND RANGE, AS ACCURATELY AS POSSIBLE. BY DIFFERING SYMBOLS ON THE MAPS: 1. KIND OF FOSSIL - INVERTEBRATE. VERTEBRATE OR PLANT; 2. KIND OF LOCALITY - PUBLISHED, PUBLISHED TYPE LOCALITY, UNPUBLISHED ´TYPE LOCALITY´; 3. GEOLOGIC AGE - CRETACEOUS, TERTIARY, QUATERNARY. IN ADDITION, THE LIST WILL CONTAIN AN INDICATION OF THE ABUNDANCE OF SPECIMENS AT EACH LOCALITY WHERE THIS INFORMATION IS OBTAINABLE. A BIBLIOGRAPHY WILL DOCUMENT THE SOURCES OF THE SITE INFORMATION LISTED AND PLOTTED. AN EVALUATIVE REPORT MINIMALLY IN THE FORM OF A LIST IDENTIFYING SITES OF EXCEPTIONAL VALUE WILL ACCOMPANY THE PREVIOUSLY MENTIONED LIST AND MAPS. THE LISTS AND MAPS WILL BE SUBMITTED DURING DECEMBER. 1976, AND, IF TIME PERMITS, A FULLER EVALUATION OF THE PROBABILITY OF DESTROYING PALEONTOLOGICAL INFORMATION BY EXCAVATION WILL BE SUBMITTED. THIS INFORMATION WILL BE ESSENTIAL IN ENERGY SITING STUDIES TO DETERMINE THE POSSIBILITY OF ARCHAEOLOGICAL DESTRUCTION. (REAP)

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00000673

PROJECT TITLE:

A FILE OF ARCHAEOLOGICAL SITES IN NORTH DAKOTA

PROJECT NUMBER:

REAP 9-01-2

INVESTIGATORS:

FREDERICK F. SCHNEIDER

RESEARCH INSTITUTION:

UNIV. OF NORTH DAKOTA, DEPT. OF ANTHROPOLOGY & ARCHAEOLOGY
GRAND FORKS, ND 58202

PRIMARY SPONSOR:

NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG / BISMARCK. ND 58505

PRIMARY FUNDING AMOUNT:

7,900

TIME FRAME:

MAY 1, 1976 TO JAN. 31, 1976

LOCATION:

ND

ABSTRACT:

THE PROJECT WILL COMPILE, STANDARDIZE. AND EDIT THE ARCHAEOLOGICAL SITE SURVEY FILES FOR THE STATE OF NORTH DAKOTA. THE FILES, ONCE SYSTEMATIZED, WILL PROVIDE READY ACCESS TO INFORMATION IN REGARD TO SITE LOCATION. RECORDED SITES WILL BE PLOTTED ON STATE COUNTY HIGHWAY MAPS, A BIBLIOGRAPHY OF REFERENCES ON NORTH DAKOTA ARCHAEOLOGY WILL BE COMPILED, AND A GUIDE WILL BE PREPARED WHICH DISCUSSES ACCESS, USE, INTERPRETATION, AND MAINTENANCE OF THE FILES AND RECORDS. THIS INFORMATION WILL BE ESSENTIAL IN ENERGY SITING STUDIES TO DETERMINE THE POSSIBILITY OF ARCHAEOLOGICAL SITE DESTRUCTION. (REAP)

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00000674

PROJECT TITLE:

AN INVENTORY OF KNOWN HISTORIC SITES IN WESTERN NORTH DAKOTA

PROJECT NUMBER:

REAP 9-01-3

INVESTIGATORS:

D. JEROME TWETON

RESEARCH INSTITUTION:

UNIV. OF NORTH DAKOTA, DEPT. OF HISTORY
GRAND FORKS, ND 58202

PRIMARY SPONSOR:

NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG / BISMARCK, ND 58505

PRIMARY FUNDING AMOUNT:

16,200

TIME FRAME:

MAY 15, 1976 TO JAN. 31, 1977

LOCATION:

ND

ABSTRACT:

AN INVENTORY WILL BE PREPARED OF HISTORIC PLACES, STRUCTURES. AND DISTRICTS IN WESTERN NORTH DAKOTA. AND A SERIES OF MAPS WILL BE PREPARED THAT WILL ILLUSTRATE THE LOCATIONS OF THESE

SITES. HISTORIC SITES WILL BE IDENTIFIED AND LOCATED BY MEANS OF EXTENSIVE EXAMINATION OF PUBLISHED AND UNPUBLISHED LITERATURE IN THE LIBRARIES OF THE UNIV. OF NORTH DAKOTA AND THE NORTH DAKOTA STATE HISTORICAL SOCIETY, AND IN REGIONAL AND LOCAL LIBRARIES THROUGHOUT THE STATE. ALL SITES INVENTORIED WILL BE RECORDED ON A STANDARD SITE FORM FOR HISTORIC SITES WHICH WILL INCLUDE THE FOLLOWING INFORMATION: 1. LOCATION OF SITES ACCORDING TO BOTH THE UNIVERSAL TRANSVERSE MERCATOR AND THE TOWNSHIP-RANGE SYSTEMS, 2. HISTORICAL FUNCTION AND SIGNIFICANCE OF EACH SITE, 3. A BRIEF EVALUATION OF EACH SITE IN TERMS OF NATIONAL REGISTER OF HISTORIC PLACES CRITERIA AND RECOMMENDATIONS FOR FUTURE CONSIDERATION. A BIBLIOGRAPHY WILL DOCUMENT THE SOURCES OF INFORMATION CONCERNING THE LOCATION AND HISTORICAL SIGNIFICANCE OF EACH SITE. A REPORT EVALUATING THE RELATIVE IMPORTANCE OF ALL INVENTORIED SITES WILL ACCOMPANY THE LISTS OF SITES, MAPS AND DESCRIPTIVE SITE FORMS. THIS INFORMATION WILL BE ESSENTIAL IN ENERGY SITING STUDIES TO DETERMINE THE POSSIBILITY OF ARCHAEOLOGICAL SITE DESTRUCTION. (REAP)

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0000675
ROJECT TITLE:
INTEGRATIVE ASSESSMENT - RECONNAISSANCE MAPPING OF ALLUVIAL VALLEYS TO DEFINE RELATIONSHIPS BETWEEN MINING OF SHALLOW COAL AND COMPETING LAND USES
NVESTIGATORS:
JACK SCHMIDT
ESEARCH INSTITUTION:
MONTANA DEPT. OF HEALTH & ENVIRONMENTAL SCIENCES
HELENA, MT 59601
RIMARY SPONSOR:
U.S. EPA, REGION VIII
1860 LINCOLN ST. / DENVER, CO 80203
RIMARY FUNDING AMOUNT:
10,000
IME FRAME:
JULY 1, 1976 TO DEC., 1976
OCATION:
MT - POWDER RIVER BASIN IN MCCONE, GARFIELD CO. AND DAWSON CO., MT.
BSTRACT:

TO DETERMINE, THROUGH RECONNAISSANCE MAPPING OF SURFACE DRAINAGES IN A THREE-COUNTY AREA OF NORTHEASTERN MONTANA, APPROPRIATE MEASURES THAT WILL PROTECT THE WATER RESOURCES AND WILL THUS PROTECT THE WATER-DEPENDENT RESOURCES OF AGRICULTURALLY IMPORTANT ALLUVIAL VALLEYS WHERE SUCH VALLEYS HAVE POTENTIAL TO BE AFFECTED BY EXTRACTIONS OF THE COAL RESOURCE. TO PROVIDE A BASIS UPON WHICH THE AREA OF EASTERN MONTANA, UNDERLAIN BY SURFACE-MINEABLE COAL, MAY BE COMPREHENSIVELY ASSESSED IN TERMS OF COMPETING USES FOR LAND AND WATER BY EXPANDING THE MAPPING EFFORT CONDUCTED IN THE POWDER RIVER BASIN TO THE GENERAL AREA ENCOMPASSED BY MCCONE, GARFIELD AND DAWSON COUNTIES (MISSOURI RIVER DRAINAGE). TO REFINE THE TECHNIQUES OF IDENTIFYING ALLUVIAL VALLEY FLOORS. (MEAC)

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00000676
PROJECT TITLE:
RESEARCH AND DEVELOPMENT OF A STATE ARCHAEOLOGICAL DATA FILE AND RETRIEVAL SYSTEM
INVESTIGATORS:
DR. LESLIE B. DAVIS
RESEARCH INSTITUTION:
MONTANA STATE UNIV., DEPT. OF SOCIOLOGY
BOZEMAN, MT 59715
PRIMARY SPONSOR:
MONTANA FISH & GAME COMMISSION, PARKS & RECREATION DIV.
HELENA, MT 59601
PRIMARY FUNDING AMOUNT:
17,200
TIME FRAME:
MAY 17, 1976 TO DEC. 31, 1976
LOCATION:
MT
ABSTRACT:

THE SIX MONTH RESEARCH AND DEVELOPMENT PERIOD WILL PRODUCE A PROPOSED ARCHAEOLOGICAL DATA FILE, RETRIEVAL AND DELIVERY SYSTEM WHEREBY THE MONTANA DEPT. OF FISH AND GAME CAN MEET ITS CULTURAL RESOURCE MANAGEMENT RESPONSIBILITIES. THE PROTOTYPE SYSTEM WILL BE DEMONSTRATED AND RECOMMENDATIONS FOR HARDWARE, A SERVICE CENTER AND POLICIES AND REGULATIONS FOR USE WILL ALSO BE PRESENTED. WHEN THE DESIGN PHASE IS CONCLUDED, THE SYSTEM WILL BE DISTRIBUTED TO USERS FOR INPUTS. SYSTEMS IN USE IN OTHER STATES AND STATE HISTORIC PRESERVATION OFFICERS AND STATE OR STAFF ARCHAEOLOGISTS IN STATES CONTIGUOUS WITH MONTANA ARE BEING STUDIED AND INTERVIEWED RESPECTIVELY IN ORDER TO REALITY TEST AND IMPROVE THE FIT OF THE PROPOSED SYSTEM. (MEAC)

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00000677
PROJECT TITLE:
ECON, INC. COLOR INFRARED ARCHAEOLOGICAL STUDY
INVESTIGATORS:
ROBERT E. CARROLL
RESEARCH INSTITUTION:
ECOLOGICAL CONSULTING SERVICE
AIRPORT WAY BLDG WEST 1300 BLOCK CEDAR / HELENA, MT
PRIMARY SPONSOR:
ECOLOGICAL CONSULTING SERVICE - ECON, INC.

PRIMARY FUNDING AMOUNT:
PROPRIETARY
TIME FRAME:
MAR. 1, 1976 TO OCT. 31, 1976
LOCATION:
MT - VARIOUS SITES
ABSTRACT:
A STUDY TO DETERMINE THE SMALLEST SCALES OF VERTICAL AERIAL PHOTOGRAPHY AT WHICH CERTAIN ARCHAEOLOGICAL MANIFESTATIONS MAY BE DISCRIMINATED AT VARIOUS SEASONS. INFORMATIONS FROM THIS INHOUSE STUDY WILL BE USED AS A REFERENCE FOR FUTURE ENERGY DEVELOPMENTS.

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00000678
PROJECT TITLE:
ECON INC. COLOR INFRARED VEGETATIVE STUDY
INVESTIGATORS:
ROBERT E. CARROLL
RESEARCH INSTITUTION:
ECOLOGICAL CONSULTING SERVICE
AIRPORT WAY BLDG WEST / 1300 BLOCK CEDAR / HELENA. MT 59601
PRIMARY SPONSOR:
ECOLOGICAL CONSULTING SERVICE - ECON INC.
PRIMARY FUNDING AMOUNT:
PROPRIETARY
TIME FRAME:
MAR. 1, 1976 TO OCT. 31. 1976
LOCATION:
MT - VARIOUS SITES
ABSTRACT:
A STUDY TO DETERMINE THE SMALLEST SCALES OF VERTICAL AERIAL FALSE COLOR INFRARED PHOTOGRAPHY IN WHICH CERTAIN VEGETATIVE SPECIES MAY BE DISCRIMINATED AT VARIOUS SEASONS. IN FORMATION FROM THIS INHOUSE STUDY WILL BE USED AS A REFERENCE FOR FUTURE ENERGY DEVELOPMENTS.

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00000679
PROJECT TITLE:
CLARIFICATION AND STANDARDIZATION OF THE DEFINITION. PURPOSE, AND PRACTICE OF ECOLOGICAL BASELINE STUDIES IN WESTERN ENERGY DEVELOPMENT AREAS
INVESTIGATORS:
DR. JAMES STATES
RESEARCH INSTITUTION:
ECOLOGY CONSULTANTS, INC.
FT. COLLINS, CO 80521
PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
JOHN A. MORRISON / RM. 206 FED. BLDG. / FT. COLLINS. CO
TIME FRAME:
SEPT. 1, 1976 TO AUG. 31, 1977
LOCATION:
ND SD MT WY
ABSTRACT:
OBJECTIVES: 1. TO CREATE AN ACCURATE AND COMPLETE DEFINITION OF ECOLOGICAL BASELINE STUDIES THAT IS UNIVERSALLY UNDERSTANDABLE, MEANINGFUL, AND ACCEPTABLE. 2. TO ESTABLISH THE FUNDAMENTAL RATIONALE, PURPOSE, AND APPROPRIATE METHODOLOGY FOR CONDUCTING ECOLOGICAL BASELINE STUDIES. 3. TO COMMUNICATE THE DEFINITION AND CONCEPTS OF ECOLOGICAL BASELINE STUDIES TO PARTICIPANTS IN WESTERN ENERGY DEVELOPMENT AND IN THE ENVIRONMENTAL STUDIES AND RECLAMATION PROGRAMS RELATED TO ENERGY DEVELOPMENT.
APPROACH: 1. INDEX, ANNOTATE, AND CATALOG PERTINENT LITERATURE AND PUBLICATIONS CONCERNING ECOLOGICAL BASELINE STUDIES AND CONSTRUCT A BIBLIOGRAPHY OF REFERENCES. 2. CRITICALLY REVIEW THE LITERATURE ON BASELINE STUDIES TO POINT OUT STRENGTHS AND WEAKNESSES AND USEFULNESS IN SUCH STUDIES. 3. CONSTRUCT A CONCISE, ACCURATE DEFINITION OF THE RATIONALE, SUBSTANCE, AND PROCESS OF ECOLOGICAL BASELINE STUDIES. 4. CONSTRUCT A THESAURUS OF KEY TERMS AND DEFINITIONS TO BE EMPLOYED IN DESIGNING. CONDUCTING AND DESCRIBING A BASELINE STUDY. 5. DESCRIBE RECOMMENDED METHODOLOGY FOR ECOLOGICAL BASELINE STUDY. 6. PREPARE A MANUAL CONTAINING THE OPERATIONAL DEFINITION, THE BIBLIOGRAPHY, THE THESAURUS. AND THE METHODOLOGY.

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0000680

ROJECT TITLE:
PILOT DEMONSTRATION - ENHANCED OIL RECOVERY BY MICELLAR-POLYMER WATERFLOODING, BELL CREEK FIELD

ROJECT NUMBER:
E(49-18)-2237

NVESTIGATORS:
RON BRANISH

ESEARCH INSTITUTION:
GARY OPERATING COMPANY
FOUR INVERNESS COURT EAST / ENGLEWOOD, CO 80110

RIMARY SPONSOR:
U.S. ERDA, BARTLESVILLE ENERGY RESEARCH CENTER
DR. FRED W. BURTCH / P.O. BOX 1398, BARTLESVILLE, OK

ECONDARY SPONSORS:
BELL CREEK UNIT 'A' WORKING INTEREST OWNERS
TECHNICAL COMMITTEE / GARY OPERATING COMPANY (OPERATOR) /
FOUR INVERNESS COURT EAST, ENGLEWOOD, CO 80110

RIMARY FUNDING AMOUNT:
2,519,500

ECONDARY FUNDING AMOUNTS:
2,519,500

IME FRAME:
JUNE 30, 1976 TO JUNE 30, 1981

OCATION:
MT, POWDER RIVER AND CARTER CO.

STRACT:
GARY OPERATING COMPANY IS CONDUCTING AN ERDA PILOT DEMONSTRATION TO DETERMINE WHETHER MICELLAR-POLYMER WATERFLOODING IS AN ECONOMICALLY FEASIBLE TECHNIQUE FOR ENHANCED OIL RECOVERY AT THE BELL CREEK FIELD, POWDER RIVER COUNTY, IN SOUTHEASTERN MONTANA.

THE PILOT IS A CONTAINED 40-ACRE 5-SPOT EMBEDDED IN A REPRESENTATIVE WATERED-OUT PART OF THE FIELD. THE PAY IS SANDSTONE WITH AVERAGE PROPERTIES AS FOLLOWS: THICKNESS OF 7 FEET, POROSITY OF 26%, PERMEABILITY (AIR) 1000 MD, AND WATER TDS OF 1000 - 3000 PPM.

THE RESIDUAL OIL SATURATION AFTER WATERFLOOD IS PRESENTLY EVALUATED AT 39%; AND THE OVERALL MICELLAR-POLYMER RECOVERY IS ESTIMATED AT 60%.

THIS PROJECT WILL RUN COMPARATIVE LABORATORY TESTS ON TWO MICELLAR-POLYMER SYSTEMS, ONE PRIMARILY WATER EXTERNAL AND ONE PRIMARILY OIL EXTERNAL. AFTER THE EFFECTIVENESS OF EACH HAS BEEN DETERMINED, A SELECTION OF THE MORE PROMISING DESIGN WILL BE MADE FOR USE IN THE PILOT DEMONSTRATION.

IF THE PILOT IS SUCCESSFUL, EXPANSION OF THE PROCESS TO THE FULL BELL CREEK FIELD COULD RETURN AN ADDITIONAL 54 MILLION BARRELS AFTER WATERFLOOD AND WILL HAVE APPLICATION TO SIMILAR MONTANA-WYOMING SANDSTONE RESERVOIRS.

TYPE OF STUDY:
PART OF 'ENHANCED OIL AND GAS RECOVERY,' DIVISION OF OIL GAS AND SHALE TECHNOLOGY, U.S. ERDA.

REPORTS AND PUBLICATIONS:
GOLDBURG, A. AND MORGENTHALER, C. E. MICELLAR-POLYMER OIL RECOVERY DEMONSTRATION IN THE BELL CREEK FIELDS. MT. ERDA SYMPOSIUM ON ENHANCED OIL AND GAS RECOVERY, TULSA, SEPT. 1976, PETROLEUM PUBLISHING CO., TULSA, OK.
AVAILABLE FROM NATIONAL TECHNICAL INFORMATION SERVICE.
U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA. 22161

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00000681

PROJECT TITLE:
ECONOMIC ANALYSIS OF OIL REFINING IN MONTANA

INVESTIGATORS:
PAUL E. POLZIN

RESEARCH INSTITUTION:
UNIV. OF MONTANA, BUREAU OF BUSINESS & ECONOMIC RESEARCH
MISSOULA, MT 59801

PRIMARY SPONSOR:
U.S. FEDERAL ENERGY ADMINISTRATION

PRIMARY FUNDING AMOUNT:
2,886

TIME FRAME:
MAY 1, 1976 TO JULY 15, 1976

STATUS:
COMPLETED JULY 15, 1976

LOCATION:
MT - BILLINGS

ABSTRACT:
THIS TWO PART STUDY WILL PROVIDE: 1. AN OVERVIEW OF OIL REFINING IN MONTANA, INCLUDING HISTORIC TRENDS IN OUTPUT, EMPLOYMENT AND SOURCES OF CRUDE OIL AND CHARACTERISTICS OF THE OIL REFINING INDUSTRY; 2. PROJECTED IMPACT OF ALTERNATIVE SCENARIOS PROJECTED DECLINES IN EMPLOYMENT AND EARNING FOR MONTANA AND BILLINGS AREA OF ALTERNATIVE SCENARIOS CONCERNING FUTURE DISTRIBUTION OF CRUDE OIL TO MONTANA REFINERIES. THE SCENARIOS WILL BE DEVELOPED BY THE MONTANA ENERGY ADVISORY COUNCIL. (MEAC)

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00000682

PROJECT TITLE:
MECHANICAL PROPERTIES OF OILSHALE

PROJECT NUMBER:
43-8214

INVESTIGATORS:
KEN P. CHONG / B. CHANG / PHILIP M. HOYT

RESEARCH INSTITUTION:
UNIV. OF WYOMING, DEPT. OF CIVIL ENGINEERING
LARAMIE, WY 82071
PRIMARY SPONSOR:
U.S. ERDA
JOHN WARD SMITH / P.O. BOX 3395 / UNIV. STATION / LARAMIE, WY, 82071
SECONDARY SPONSORS:
U.S. ERDA, LARAMIE ENERGY RESEARCH CENTER
PRIMARY FUNDING AMOUNT:
(ERDA) FY 77 - 66,000
SECONDARY FUNDING AMOUNTS:
(LERC) FY 76 - 19,500 / FY 77 - 23.000
TOTAL 42,500
TIME FRAME:
DEC., 1975 TO OCT., 1977
LOCATION:
WY CO - GREEN RIVER, WY; RIFLE, CO
ABSTRACT:

DUE TO THE ENERGY CRISIS OILSHALE IS BECOMING MORE AND MORE IMPORTANT AS AN ALTERNATIVE ENERGY SOURCE. PRESENT RECOVERY TECHNIQUES INVOLVE EX SITU AND IN SITU PROCESSES. IN IN SITU COMBUSTION THE MECHANICAL PROPERTIES OF OILSHALE, SUCH AS FRACTURING CRITERIA, ARE USEFUL ENGINEERING GUIDELINES. IN SITU COMBUSTION HOLDS MORE PROMISE FOR ITS EFFICIENCY AND MINIMUM IMPACT ON THE ENVIRONMENT. THE FOLLOWING TOPICS ARE INCLUDED IN A RESEARCH PROGRAM:

1. UNIAXIAL STATIC COMPRESSIVE AND TENSILE TESTING FOR SAMPLES PERPENDICULAR AND PARALLEL TO BEDDING PLANES. EXTENSOMETER AND/OR STRAIN-GAGE INSTRUMENTATION ARE USED.
2. BY VARYING THE STRAIN-RATE, IN AN INSTRON STATIC/DYNAMIC TESTING MACHINE, THE TIME-DEPENDENT MECHANICAL PROPERTIES ARE GENERATED. USING VISCO-ELASTIC MODELS CONSTITUTIVE EQUATIONS ARE FORMULATED.
3. UNIAXIAL FATIGUE RESISTANCE IS INVESTIGATED.
4. UNIAXIAL FRACTURING RESISTANCE DUE TO STATIC AND POSSIBLY IMPACT LOADINGS ARE TO BE TREATED.
5. TRUE TRIAXIAL STRESS-STRAIN RELATIONS ARE TO BE TESTED USING A PATENTED TRIAXIAL CELL DEVELOPED BY DR. H. Y. KO OF THE UNIVERSITY OF COLORADO.

FROM THE ABOVE TESTING MOST OF THE MECHANICAL PROPERTIES OF OILSHALE ARE EXPLORED. IT IS HOPED THAT THESE PROPERTIES WIL PROVIDE SOME ACCURATE INSIGHT INTO THE FRACTURING MECHANISM IN AN IN SITU COMBUSTION.

REPORTS AND PUBLICATIONS:

K. P. CHONG, J. W. SMITH, B. CHANG, P. M. HOYT, H. C. CARPENTER. ˝CHARACTERIZATION OF OILSHALE UNDER UNIAXIAL COMPRESSION PROCEEDINGS OF 17TH U.S. SYMPOSIUM ON ROCK MECHANICS, UNIV. OF UTAH, 1976.
AVAILABLE FROM: UTAH ENGINEERING EXPERIMENT STATION / UNIV. OF UTAH / SALT LAKE CITY, UT 84112. COST 130.00

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00000683
PROJECT TITLE:
SIOUX PLANNING UNIT - CUSTER NATIONAL FOREST - DRAFT ENVIRONMENTAL STATEMENT
INVESTIGATORS:
ROBERT M. RICHMOND / JAMES L. CULBERTSON / RONALD F. ESCANO / ROBERT W. HAMNER / VALDON B. HANCOCK / DARROL L. HARRISON / DONNA KITCHEN / BRONSON LA MOURE / ROBERT MCHUGH RONALD STELLINGWERF / CHARLES A. TIETZ
RESEARCH INSTITUTION:
U.S. FOREST SERVICE, CUSTER NATIONAL FOREST
BILLINGS, MT 59101
PRIMARY SPONSOR:
U.S. FOREST SERVICE, CUSTER NATIONAL FOREST
DAN C. MACINTYRE / BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT:
120,000
TIME FRAME:
MARCH, 1975 - NOV., 1976
LOCATION:
SD
ABSTRACT:

THE SIOUX PLANNING UNIT IS OF PARTICULAR RESOURCE INTEREST BECAUSE OF THE URANIUM, OIL AND GAS EXPLORATION THAT HAS TAKEN PLACE WITHIN THE UNIT SINCE 1972. MOBIL OIL CORP. STAKED 1,165 CLAIMS COVERING APPROXIMATELY 23,000 ACRES IN THE LONG PINES SEVERAL YEARS AGO. THEY BEGAN EXPLORATORY DRILLING ON THESE CLAIMS IN 1973 TO PROSPECT SUSPECTED URANIUM DEPOSITS IN THE FOX HILL SAND FORMATION. THE OUTCOME OF THIS ON-GOING EXPLORATION WILL NOT BE KNOWN FOR SEVERAL YEARS.

AN OIL WELL EXISTS ON THE PLANNING UNIT IN THE NORTH CAVE HILLS. IT HAS PRODUCED OVER ONE-QUARTER MILLION BARRELS OF OIL SINCE APRIL, 1972. IT IS THE LARGEST PRODUCING OIL WELL IN SOUTH DAKOTA. IT SEEMS PROBABLE THAT THERE WILL BE MORE DISCOVERY AND DEVELOPMENT OF OIL OR GAS IN THE PLANNING UNIT. FUTURE DEVELOPMENT COULD RESULT IN SMALL 1-5 WELL FIELDS, ALTHOUGH THERE MAY BE A POTENTIAL FOR DISCOVERY OF LARGER FIELDS. (MEAC)

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00000684
PROJECT TITLE:
WATER QUALITY INVESTIGATIONS IN GEOTHERMAL AREAS OF CHICO AND HUNTER HOT SPRINGS, MONTANA
INVESTIGATORS:
ROBERT LEONARD
RESEARCH INSTITUTION:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
FEDERAL BLDG. / HELENA, MT 59601
PRIMARY SPONSOR:
U.S. BUREAU OF LAND MANAGEMENT, EMRIA
LYLE RALSTON / P.O. BOX 30157 / BILLINGS, MT 59107
PRIMARY FUNDING AMOUNT:
FY 77 - 12,000
TIME FRAME:
OCT. 1, 1976 TO SEPT. 30, 1977
LOCATION:
MT - NEAR GARDINER, MT
ABSTRACT:
THIS STUDY IS A RECONNAISSANCE BASELINE WATER QUALITY STUDY OF TRIBUTARIES TO THE UPPER YELLOWSTONE WHICH MAY BE AFFECTED BY GEOTHERMAL DEVELOPMENT.
REPORTS AND PUBLICATIONS:
INTERIM REPORT. ROBERT LEONARD. OCT. 1977.
AVAILABLE FROM U.S. GEOLOGICAL SURVEY, HELENA AND BILLINGS, MT

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00000685
PROJECT TITLE:
A PRELIMINARY OVERVIEW OF THE FEASIBILITY OF AN HYDROELECTRIC POWER PLANT ON THE KOOTENAI RIVER NEAR TROY, MT
INVESTIGATORS:
JONOTHAN DUEKER
RESEARCH INSTITUTION:
BEAK CONSULTANTS
LOYALTY BUILDING / 317 S.W. ALDER / PORTLAND, OR
COOPERATOR:
MONTANA DEPT. OF FISH AND GAME
U.S. FISH & WILDLIFE SERV.
PRIMARY SPONSOR:
NORTHERN LIGHTS, INC.
WILLIAM NORDEEN, MGR.; ERVAL RAINEY, ASST. MGR. / SANDPOINT, ID
PRIMARY FUNDING AMOUNT:
23,000
TIME FRAME:
DEC., 1975 TO DEC., 1978
LOCATION:
MT - TROY; KOOTENAI RIVER
ABSTRACT:
THIS THREE-YEAR FEASIBILITY STUDY WILL LOOK AT IMPACTS ON NATURAL RESOURCES AND VALUES, FISH AND WILDLIFE RESOURCES, AND ENGINEERING FEASIBILITY.
IF CONSTRUCTED, THE PLANT WOULD PROVIDE AN ESTIMATED ANNUAL GENERATION OF 500 MILLION KILOWATT HOURS OF ELECTRICITY.
NORTHERN LIGHTS IS REQUIRED BY THE FEDERAL POWER COMMISSION TO CONSULT WITH THE MONTANA DEPT. OF FISH AND GAME AND THE U.S. FISH AND WILDLIFE SERV. TO PREPARE A STUDY ON THE EFFECTS OF THE PLANT ON FISH AND WILDLIFE RESOURCES. (MEAC)

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00000686
PROJECT TITLE:
EVALUATION OF UTILIZATION POTENTIAL OF DEAD TIMBER, BASED ON ANALYSIS OF CHEMICAL CHARACTERISTICS
PROJECT NUMBER:
SUPPLEMENT NO. 68 TO 12-11-204-1
INVESTIGATORS:
DR. FRED SHAFIZADEH / DAVID LOWERY
RESEARCH INSTITUTION:
UNIV. OF MONTANA, DEPT. OF WOOD CHEMISTRY
MISSOULA, MT 59801
COOPERATOR:
U.S. FOREST SERVICE, FORESTRY SCI. LAB
PRIMARY SPONSOR:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
9,500
TIME FRAME:
OCT. 1, 1975 TO SEPT. 30, 1976
ABSTRACT:
THE NORTHERN FORESTS PRODUCE COMBUSTIBLE MATERIALS AT THE RATE OF ABOUT 10 BILLION CALORIES PER YEAR, PER ACRE, HALF OF WHICH IS DECOMPOSED BY NATURAL PROCESSES. ACCUMULATION OF FOREST FUEL AND THE ACCOMPANIED FIRE HAZARDS ARE HEIGHTENED BY THE MORTALITY OF THE TREES DUE TO VARIOUS CAUSES. TIMBER HARVESTING REMOVES ABOUT 50% OF THE ORGANIC MATERIAL IN THE TREE LEAVING THE REST INCLUDING THE DEAD AND DECOMPOSING MATERIALS AS SLASH, WHICH IS GENERALLY DISPOSED OF BY BURNING, WITH SOME ACCOMPANIED ENVIRONMENTAL PROBLEMS. ACCORDING TO THE FOREST SERVICE, THE SLASH PRODUCED IN THIS REGION, SINCE 1961, IS ESTIMATED AT ABOUT 120 MILLION TONS, MORE THAN HALF OF WHICH STILL REMAINS IN THE FORESTS. BECAUSE OF THE CLIMATIC CONDITIONS, THE DEAD TREES ARE NOT READILY DECOMPOSED. IN THE STATE OF MONTANA ALONE, THERE IS ABOUT 37.5 MILLION TONS OF SALVABLE DEAD WOOD, EQUIVALENT TO ABOUT 15 YEARS' HARVEST. SOME OF THESE MATERIALS COULD

BE CONVERTED TO FUEL, CHEMICALS AND EVEN FOOD.

THIS PROJECT INVOLVES CHEMICAL ANALYSES AND DESCRIPTION OF THE AVAILABLE DEAD WOOD IN ORDER TO DETERMINE THE SUITABILITY FOR VARIOUS APPLICATIONS LEADING TO AN INTEGRATED MANAGEMENT OF THE FORESTS IN THE STATE OF MONTANA.

REPORTS AND PUBLICATIONS:

F. SHAFIZADEH. 'ROCKY MOUNTAIN FOREST FUEL.' FIRST ROCKY MOUNTAIN FUEL SYMPOSIUM, BRIGHAM YOUNG UNIVERSITY, PROVO, UTAH, JANUARY 20, 1976.

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00000687

PROJECT TITLE:

PYROLYTIC CONVERSION OF CELLULOSIC MATERIALS

PROJECT NUMBER:

AER75-15930

INVESTIGATORS:

DR. FRED SHAFIZADEH

RESEARCH INSTITUTION:

UNIV. OF MONTANA, DEPT. OF WOOD CHEMISTRY
MISSOULA, MT 59801

PRIMARY SPONSOR:

NATIONAL SCIENCE FOUNDATION

PRIMARY FUNDING AMOUNT:

165,000

TIME FRAME:

JUNE 1, 1976 TO NOV. 30, 1978

LOCATION:

MT

ABSTRACT:

THE WORLD-WIDE SHORTAGE OF FOOD AND CHEMICALS AND TIGHT SUPPLY OF FOSSIL FUELS AND PETROCHEMICALS NECESSITATE FRESH EFFORT FOR EFFICIENT UTILIZATION OF RENEWABLE CELLULOSIC MATERIALS. THESE EFFORTS SHOULD INVOLVE NOT ONLY REASSESSMENT AND APPLICATION OF EXISTING TECHNOLOGY, BUT ALSO MODERNIZING OLD PROCESSES AND DEVELOPING NEW ONES.

PYROLYSIS OF CELLULOSIC MATERIALS PROVIDES AN INHERENTLY EFFICIENT PROCESS FOR CONVERSION OF CELLULOSIC MATERIALS TO A WIDE RANGE OF USEFUL PRODUCTS, INCLUDING SOLVENTS, SUGAR, NUTRIENTS, FURFURAL, ACETALDEHYDE, ACETIC ACID, METHANOL, CHARCOAL, AND DIFFERENT TYPES OF LIQUID AND GASEOUS FUEL.

SPECIFICALLY, THIS PROJECT IS CONCERNED WITH: 1. DEPOLYMERIZATION OF CELLULOSIC MATERIALS TO LEVOGLUCOSAN AND SUGARS. 2. CATALYTIC BREAKDOWN OF CELLULOSIC MATERIALS TO LEVOGLUCOSENONE AND OTHER VOLATILE, REACTIVE OLEFINIC COMPOUNDS. 3. INCREASING THE ACCESSIBILITY AND SUSCEPTIBILITY OF CELLULOSIC MATERIALS TO BIOLOGICAL HYDROLYSIS. (MEAC)

REPORTS AND PUBLICATIONS:

SHAFIZADEH, F. 'INDUSTRIAL PYROLYSIS OF CELLULOSIC MATERIALS.' APPL. POLYM. SYMP., 28, 153 (1975)

SHAFIZADEH, F., C. MCINTYRE, ET AL. 'CHEMICAL CONVERSION OF WOOD AND CELLULOSIC WASTES.' PROCEEDINGS, MONTANA ACADEMY OF SCIENCES, 33, 65 (1973)

SHAFIZADEH, F. AND F. S. CHIN. 'NEW SOURCES OF FOOD AND CHEMICALS.' PROCEEDINGS, 30TH NORTHWEST WOOD PRODUCTS CLINIC, (MAY, 5-7, 1975)

SHAFIZADEH, F. 'PYROLYTIC CONVERSION OF BIOMASS TO USEFUL CHEMICALS.' PRESENTED AT UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON, AUGUST 24, 1976.

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00000688

PROJECT TITLE:

ENERGY RELATED GRADUATE TRAINEES - GEOTHERMAL

PROJECT NUMBER:

8052

INVESTIGATORS:

ROBERT MCCULLOGH

RESEARCH INSTITUTION:

UNIV. OF WYOMING, GRADUATE SCHOOL
LARAMIE, WY 82071

PRIMARY SPONSOR:

NATIONAL SCIENCE FOUNDATION

PRIMARY FUNDING AMOUNT:

38,600

TIME FRAME:

AUG. 26, 1974 TO SEPT. 30, 1977

LOCATION:

WY

ABSTRACT:

FUNDING FOR GRADUATE STUDENTS IN THE STUDY OR RESEARCH IN FIELDS RELATED TO GEOTHERMAL ENERGY.

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00000689

PROJECT TITLE:

TERRESTRIAL HEAT FLOW IN THE WILLISTON BASIN

INVESTIGATORS:

FRANCIS HOWELL (UND - PHYSICS) / F. KARNER (UND - GEOLOGY)

RESEARCH INSTITUTION:

UNIV. OF NORTH DAKOTA, DEPT. OF PHYSICS
UNIV. OF NORTH DAKOTA, DEPT. OF GEOLOGY
UNIVERSITY STATION / GRAND FORKS, ND 58202

PRIMARY SPONSOR:

NATIONAL SCIENCE FOUNDATION

PRIMARY FUNDING AMOUNT:

30,000

TIME FRAME:

SEPT., 1974 TO SEPT., 1976

LOCATION:
ND

ABSTRACT:
OBJECTIVE: TO DEVELOP COMPREHENSIVE HEAT FLOW/HEAT PRODUCTION DATA FOR THE STATE.

METHODOLOGY: MEASUREMENT OF SUBSURFACE TEMPERATURES IN WELLS (TO DEPTHS OF ABOUT 2000 METERS). SOIL SAMPLES FROM THE WELLS ARE TAKEN AND THEN GIVEN A MEASUREMENT OF THERMAL CONDUCTIVITY AT THE LAB.

APPLICATION OF WORK: THIS DATA WILL PROVIDE BASIC INFORMATION USEFUL IN INTERPRETING THE GEOLOGY OF THE REGION AND WILL CLARIFY THE FEASIBILITY OF NORTH DAKOTA'S THERMAL ENERGY RESOURCES AS AN ALTERNATE SOURCE OF ENERGY.

PROGRESS OF WORK AND MAJOR ACCOMPLISHMENTS: TEMPERATURE MEASUREMENTS HAVE BEEN COMPLETED AT TWENTY WELL-SITES PRIMARILY IN SOUTHWESTERN NORTH DAKOTA. HEAT FLOW VALUES HAVE BEEN DETERMINED FOR FOUR WELL-SITES. (REAP)

REPORTS AND PUBLICATIONS:
PRELIMINARY STUDY OF HEAT FLOW IN WESTERN NORTH DAKOTA. EOS; TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION. 1974.
TERRESTRIAL HEAT FLOW AT FOUR SHALLOW SITES IN SOUTHWESTERN NORTH DAKOTA. NORTH DAKOTA ACADEMY OF SCIENCE. 1976.

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0000640
PROJECT TITLE:
DESIGN OF A SOLAR AND HEAT PUMP HEATING SYSTEM
INVESTIGATORS:
MASON H. SOMERVILLE
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIVERISTY STATION / GRAND FORKS, ND 58202
COOPERATOR:
MINNKOTA POWER COOPERATIVE / ANDRO CORP. / MARVIN WINDOWS
PRIMARY SPONSOR:
NORTHERN STATES POWER CO. / TRANE CO. / OTTER TAIL POWER CO.
PRIMARY FUNDING AMOUNT:
3,500 (NSPC)
1,000 (TRANE)
3,500 (OTTER)
TIME FRAME:
MAY, 1976 TO DEC., 1979
LOCATION:
ND MN

ABSTRACT:
OBJECTIVE: THE OBJECTIVE IS TO DESIGN A SOLAR ASSISTED HEAT PUMP HEATING SYSTEM TO BE INSTALLED IN A RESIDENTIAL HOME AND MAINTAIN THE HOME AT BETWEEN 68 DEGRESS AND 82 DEGREES THROUGHOUT THE YEAR. THE INTERFACE BETWEEN THE HOMEOWNER AND THE HEATING SYSTEM IS TO BE AS CONVENTIONAL AS POSSIBLE (I.E. CONVENTIONAL THERMOSTAT OPERATION).

METHODOLOGY: THE ENGINEERING EXPERIMENT STATION, UNIVERSITY OF NORTH DAKOTA WILL DESIGN AND SUPERVISE THE INSTALLATION OF THE SOLAR ASSISTED HEAT PUMP SYSTEM IN TWO RESIDENTIAL STRUCTURES, ONE LOCATED IN CROOKSTON, MINNESOTA AND ANOTHER LOCATED IN LARIMORE, NORTH DAKOTA. THE STATION WILL MONITOR THE PROGRESS AND COLLECT DATA TO EVALUATE THE EFFICIENCY, USE AND FEASIBILITY OF SUCH A SYSTEM IN THIS CLIMATE. THE DATA COLLECTED WILL BE FROM SOLAR USE AND FROM CONVENTIONAL HEATING AND COOLING USE.

APPLICATION OF WORK: THIS PROJECT COULD PROVIDE THE MEANS TO THE USE OF SOLAR ENERGY AS AN ALTERNATIVE SOURCE FOR THE HEATING AND COOLING OF RESIDENTIAL STRUCTURES IN NORTH DAKOTA.

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00000691

PROJECT TITLE:
URANIUM WATER AND SEDIMENT GEOCHEMISTRY OF BOULDER BATHOLITH, WESTERN MONTANA

INVESTIGATORS:
ARNOLD J. SILVERMAN / IAN LANGE

RESEARCH INSTITUTION:
UNIV. OF MONTANA, DEPT. OF GEOLOGY
MISSOULA, MT 59801

PRIMARY SPONSOR:
U.S. ERDA, LOS ALAMOS SCIENTIFIC LAB.
P.O. BOX 1663 / LOS ALAMOS, NM 87544

PRIMARY FUNDING AMOUNT:
14,364

TIME FRAME:
MAY 1, 1976 TO AUG. 1, 1976

LOCATION:
MT - BOULDER BATHOLITH BETWEEN BUTTE AND HELENA, MT

ABSTRACT:
SAMPLING OF WATER AND STREAM SEDIMENTS FOR URANIUM IN THE AREA BETWEEN HELENA AND BUTTE, MONTANA (BOULDER BATHOLITH). GEOLOGY DEPARTMENT WILL COLLECT SAMPLES AND ANALYSIS WILL BE CONDUCTED AT LOS ALAMOS LAB. (MEAC)

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00000692

PROJECT TITLE:
DEVELOPMENT OF REHABILITATION METHODS FOR ALPINE DISTURBANCES

PROJECT NUMBER:
C-104-L6

INVESTIGATORS:
RAY W. BROWN

RESEARCH INSTITUTION:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321

PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE / BILLINGS, MT 59101

SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION

PRIMARY FUNDING AMOUNT:
6,000

SECONDARY FUNDING AMOUNTS:
4,000

TIME FRAME:
JULY, 1974 TO SEPT. 1978

LOCATION:
MT AK

ABSTRACT:
THE ALPINE ENVIRONMENT IS PARTICULARLY HARSH, AND CONVENTIONA REHABILITATION TECHNIQUES ARE NOT WELL ADAPTED TO ITS CONDITION. TYPICAL REVEGETATION SPECIES AND TECHNIQUES DO NOT APPEAR TO RESPOND TO THE COOL TEMPERATURES OF THE SHORT GROWING SEASON IN THESE REGIONS. HOWEVER, SOME CONVENTIONAL PRACTICES ARE MANDATORY. FOR EXAMPLE, FERTILIZER, MULCH AND ORGANIC MATTER INCORPORATION INTO THE SPOIL MATERIAL IS ABSOLUTELY ESSENTIAL FOR PLANT GROWTH. IN ACID AREAS LIME APPLICATIONS MAY BE NEEDED. HOWEVER, OTHER METHODS ARE NOT NECESSARILY CONVENTIONAL. NATIVE SEED SHOULD BE PLANTED AT THE RATE OF ABOUT 50 LBS. PER ACRE IN THE FALL ONLY, MUST BE RAKED INTO THE SOIL, AND THEN THE SEEDBED PACKED HEAVILY. TRANSPLANTING IS BY FAR THE MOST SUCCESSFUL REVEGETATION METHOD ON ALPINE AREAS. NURSERY GROWN STOCK APPEARS TO HAVE A WIDE RANGE OF USE FOR REVEGETATION OF ALPINE DISTURBANCES. (SEAM)

REPORTS AND PUBLICATIONS:
JOHNSTON, R. S., BROWN, R. W. AND J. CRAVENS. 1975. ACID MINE REHABILITATION PROBLEMS AT HIGH ELEVATIONS. PROC. SYM. WATERSHED MGMT. AMER. SOC. CIVIL ENG. USU PP. 66-79.
BROWN, R. W. AND R. S. JOHNSTON, 1976. REVEGETATION OF AN ALPINE DISTURBANCE: BEARTOOTH PLATEAU, MONTANA. USDA FOREST SERVICE RESEARCH NOTE INT-206.

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00000693

PROJECT TITLE:
DEVELOP SEED SOURCES FOR ADAPTED ALPINE PLANTS FOR USE IN IN ALPINE SURFACE MINE REVEGETATION

PROJECT NUMBER:
C-103-L3

INVESTIGATORS:
RAY W. BROWN

RESEARCH INSTITUTION:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321

PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE / BILLINGS, MT 59102

SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION

PRIMARY FUNDING AMOUNT:
18,000

SECONDARY FUNDING AMOUNTS:
7,000

TIME FRAME:
JULY, 1975 TO SEPT., 1978

LOCATION:
UT MT CO AK

ABSTRACT:
THE MOST ADAPTED PLANT SPECIES FOR REVEGETATION OF ALPINE DIS

TURBANCES APPEAR TO BE THE NATIVES. BUT THEY ARE TOTALLY UNAVAILABLE THROUGH COMMERCIAL SOURCES. EVEN SMALL SCALE TESTING REQUIRES EXPENSIVE AND TIME CONSUMING COLLECTION BY HAND IN THE FIELD, WHERE SEED SOURCES ARE VERY UNPREDICTABLE. THEREFORE, WE ARE ATTEMPTING TO GROW ADAPTED GERM PLASM IN THE GREENHOUSE FOR LARGE SCALE PROPAGATION. THEN TRANSPLANT OUT TO THE FIELD FOR NURSERY PRODUCTION OF PLANTS AND SEEDS. SMALL SCALE TESTING OF A FEW THOUSAND PLANTS INDICATE THAT THE PLANTS GROW AND DEVELOP VIGOROUSLY IN A NURSERY, AND SEED PRODUCTION IS GREATLY ENHANCED. AT PRESENT ABOUT 1 ACRE OF NATIVE GRASSES ARE UNDER CULTIVATION FOR SEED PRODUCTION AT LOGAN, AND A SIZEABLE SEED CROP IS EXPECTED IN 1976. (SEAM)

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U0000694
PROJECT TITLE:
EFFECT OF DIFFERENT REVEGETATION TECHNIQUES ON SUCCESSIONAL TRENDS ON MINE SPOILS
PROJECT NUMBER:
A-3E1-L3
INVESTIGATORS:
RAY W. BROWN
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321
DR. THAD BOX / PATRICIA HOWARD
RESEARCH INSTITUTION:
UTAH STATE UNIV., COLLEGE OF NATURAL RESOURCES
LOGAN, UT 84321
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE / BILLINGS, MT 59102
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
1,000
SECONDARY FUNDING AMOUNTS:
5,000 (IFRES)
TIME FRAME:
NOV. 1, 1975 TO SEPT. 30, 1978
LOCATION:
ID MT
ABSTRACT:

THIS STUDY IS BEING CONDUCTED SIMULTANEOUSLY WITH SEAM A-4A1-L3, "EVALUATION OF MINING AND POST-MINING MANAGEMENT ON PLANT SUCCESSION IN NATURAL ECOSYSTEMS," AND IS DESIGNED TO DETERMINE THE SUCCESSIONAL PATTERNS ON MINE SPOILS AND COMPARE THEM WITH THOSE ON ADJACENT UNDISTURBED SITES. THIS WORK IS CURRENTLY BEING CONDUCTED ON THE PHOSPHATE MINES IN SE IDAHO AND ON THE BEARTOOTH PLATEAU IN MONTANA. PLANT SPECIES. DENSITY, COVER, AND FREQUENCY ARE BEING MEASURED ON VARIOUS CLASSES OF SPOIL MATERIAL OF VARIOUS AGES RANGING FROM RECENT TO OLD DISTURBANCES. THESE DATA ARE BEING COMPARED WITH SIMILAR INFORMATION FOR UNDISTURBED AREAS ADJACENT TO THE MINE AS A QUANTITATIVE MEASURE OF DIFFERENCE. SOIL ANALYSES. SOIL WATER POTENTIAL AND OTHER ENVIRONMENTAL FACTORS ARE BEING MONITORED. SEED AND OTHER PLANT PROPAGATION DISPERSIONS FROM UNDISTURBED AREAS IS ALSO BEING STUDIED TO DETERMINE WHAT SPECIES ARE THE MOST ACTIVE SEED CONTRIBUTORS. (SEAM)

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U0000695
PROJECT TITLE:
EVALUATION OF MINING AND POST MINING MANAGEMENT ON PLANT SUCCESSION IN NATURAL ECOSYSTEMS
PROJECT NUMBER:
A-4A1-L3
INVESTIGATORS:
RAY W. BROWN (USFS INTERMTN. FOREST & RANGE EXP. STATION)
DR. THAD BOX / PATRICIA HOWARD (UTAH STATE UNIV.)
RESEARCH INSTITUTION:
UTAH STATE UNIV., COLLEGE OF NATURAL RESOURCES
LOGAN, UT 84321
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59102
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321
PRIMARY FUNDING AMOUNT:
7,000
SECONDARY FUNDING AMOUNTS:
4,000
TIME FRAME:
NOV. 1, 1975 TO SEPT. 30, 1978
LOCATION:
ID MT - PHOSPHATE MINES IN IDAHO; BEARTOOTH PLATEAU, MT
ABSTRACT:

THIS IS A JOINT STUDY WITH SEAM A-3E1-L3, "EFFECT OF DIFFERENT REVEGETATION TECHNIQUES ON SUCCESSIONAL TRENDS ON MINE SPOILS," TO DETERMINE THE IMPACTS OF MINING AND POST MINING ACTIVITIES ON PLANT SUCCESSION IN NATURAL ECOSYSTEMS. SUCCESSIONAL TRENDS ON ADJACENT UNDISTURBED ECOSYSTEMS IN THE VICINITY OF MINING OPERATIONS ARE BEING STUDIED SIMULTANEOUSLY WITH THAT ON THE MINE SPOIL MATERIAL. CONTAMINATED WATER RUNOFF FROM MINED AREAS IS ONE OF THE MOST IMPORTANT IMPACTS ON ADJACENT UNDISTURBED ECOSYSTEMS. BOTH TERRESTRIAL AND AQUATIC. ACID DRAINAGE AND NITRATE ACCUMULATION IN THE WATER FROM FERTILIZERS IS CAUSING SEVERE DAMAGE TO OFF-MINE-SITE IN SOME AREAS. PLANT SUCCESSIONAL TRENDS ARE ALTERED CONSIDERABLY IN THESE CASES. AND WHOLE NEW ECOSYSTEMS ARE DEVELOPING. IMPACTS APPEAR

TO BE LONG-LIVED, AND MAY SERIOUSLY AFFECT THE DISTRIBUTION OF NATURAL FLORA AND FAUNA IN AREAS ADJACENT TO MINING. (SEAM)

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00000696

PROJECT TITLE:

PERFORMANCE OF SPECIES IN MIXTURES GROWING ON ALPINE MINE SPOILS

PROJECT NUMBER:

A-3E1-L4-D

INVESTIGATORS:

RAY W. BROWN

RESEARCH INSTITUTION:

U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321

PRIMARY SPONSOR:

U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59102

SECONDARY SPONSORS:

U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION

PRIMARY FUNDING AMOUNT:

8,000

SECONDARY FUNDING AMOUNTS:

13,000

TIME FRAME:

AUG. 30, 1972 TO SEPT. 30, 1978

ABSTRACT:

SPECIES ADAPTABILITY TO MINE SPOIL CONDITIONS ARE COMPLICATED BY THE SEVERE NATURE OF THE ALPINE ENVIRONMENT. MANY COMMERCIALLY AVAILABLE SPECIES CAN SUCCESSFULLY GROW IN ALPINE MINE SPOILS. BUT ARE NOT CAPABLE OF SURVIVING UNDER THE HARSH CLIMATE CONDITIONS IN THESE AREAS. CONVERSELY, MANY OF THE NATIVE SPECIES, WHICH ARE CLIMATICALLY ADAPTED, SHOW POOR ADAPTABILITY TO SPOIL MATERIAL. THE OBJECTIVE IS TO DETERMINE WHAT PLANT SPECIES, EITHER ALONE, OR IN MIXTURES CAN BE GROWN SUCCESSFULLY UNDER THESE CONDITIONS. INDICATIONS SO FAR ARE THAT MIXTURES OF INTRODUCED AND NATIVE SPECIES SHOULD BE USED ON THE SPOILS. THE INTRODUCED GRASSES GROW MORE QUICKLY BUT ARE SHORT-LIVED. HOWEVER, THEY AMELIORATE SITE CONDITIONS BY PROVIDING ORGANIC MATTER AND ENHANCE SOIL FERTILITY, SO THAT WITHIN SEVERAL YEARS AFTER SEEDING. THE NATIVE SPECIES CAN BEGIN TO INVADE AND STABILIZE THE SITE. TENTATIVE DATA FROM IRON MTN. SHOW THAT ABOUT 3-5 YEARS ARE REQUIRED FOR THIS. (SEAM)

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00000697

PROJECT TITLE:

SPECIES ADAPTABILITY TO ALPINE MINE SPOILS ASSESSED BY BIOASSAY TECHNIQUES

PROJECT NUMBER:

C-182-L1C

INVESTIGATORS:

RAY W. BROWN

RESEARCH INSTITUTION:

U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
860 N. 12TH EAST / LOGAN, UT 84321

PRIMARY SPONSOR:

U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59102

SECONDARY SPONSORS:

U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION

PRIMARY FUNDING AMOUNT:

5,000

SECONDARY FUNDING AMOUNTS:

9,000

TIME FRAME:

NOV. 1, 1975 TO SEPT. 30, 1978

ABSTRACT:

ALPINE MINE SPOILS, LIKE THOSE IN OTHER ENVIRONMENTS. ARE TYPICALLY STERILE ROCKY MATERIALS, OFTEN PYRITIC IN NATURE WITH LOW PH. PLANT SUCCESSION AND COLONIZATION STUDIES SHOW THAT NATIVE SPECIES ARE SLOW TO COLONIZE THESE MATERIALS, INDICATING THAT SPOIL CHARACTERISTICS ARE LIMITING. HOWEVER, SOME NATIVE SPECIES DO COLONIZE THESE MATERIALS UNDER SOME CONDITIONS. THIS STUDY IS DESIGNED TO DETERMINE WHAT NATIVE AND INTRODUCED SPECIES ARE CAPABLE OF GENERATING, GROWING AND COMPLETING THEIR ENTIRE LIFE CYCLES IN ALPINE MINE SPOILS. ALSO, IT IS DESIGNED TO DETERMINE WHAT MINIMUM SPOIL AMELIORATION IS NEEDED TO ENHANCE GROWTH. SO FAR, SEVERAL NATIVE AND INTRODUCED SPECIES HAVE BEEN FOUND THAT APPEAR TO GROW VERY WELL IN THESE MATERIALS, BUT NONE HAVE YET BEEN FOUND WHICH DO SO WITHOUT ADDITIONS OF SOME AMENDMENTS. (SEAM)

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00000698

PROJECT TITLE:

NITROGEN FIXATION IN NON-LEGUMINOUS PLANTS USED FOR SURFACE MINE REVEGETATION

PROJECT NUMBER:

C-184-L2

INVESTIGATORS:

RAY W. BROWN

RESEARCH INSTITUTION:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
560 N. 12TH EAST / LOGAN, UT 84321
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59101
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
2,000
SECONDARY FUNDING AMOUNTS:
1,000
TIME FRAME:
JULY 1, 1975 TO CONTINUING
LOCATION: ID MT UT

THE INITIAL PHASES OF THE RESEARCH ARE BEING DONE WITH A PROSTRATE SHRUB, CEANOTHUS PROSTRATUS, A NITROGEN FIXING PLANT NATIVE TO THE EAST SLOPE OF THE SIERRA NEVADA MOUNTAINS. EXTENSIVE NODULE DEVELOPMENT ON THE ROOT SYSTEM IS COMMON, AND THE INDIGINEOUS SYMBIOTE APPEARS TO BE AN ACTINOMYCETE, A FUNGI. THE MAIN PROBLEMS REMAINING APPEAR TO BE TO DEVELOP METHODS OF INNOCULATING THE ACTINOMYCETE IN NEW PLANTING AREAS TO INFECT THE ROOT SYSTEMS OF RECENTLY ROOTED CUTTINGS. ALSO, WE NEED TO IDENTIFY ADAPTED ECOTYPES AND PROPAGATE THEM FOR OUTPLANTING. ESTABLISHED OUTPLANTINGS NOW ABOUT 10 YEARS OLD IN THE INTERMOUNTAIN AREA DISPLAY A NUMBER OF ADAPTED ECOTYPES, AND RESEARCH IS NOW UNDERWAY TO PROPAGATE ROOTED STOCK AND OUTPLANT THEM TO NEW LOCALITIES, PARTICULARLY MINE SPOIL SITES.

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00000699
PROJECT TITLE:
IDENTIFY PLANT SPECIES ADAPTED FOR GROWTH AND ESTABLISHMENT ON ALPINE MINE SPOILS
PROJECT NUMBER:
C-102-L5
INVESTIGATORS:
RAY W. BROWN
RESEARCH INSTITUTION:
U.S. FOREST SERVICE INTERMTN. FOREST & RANGE EXP. STATION
560 N. 12TH EAST / LOGAN, UT 84321
PRIMARY SPONSOR:
U.S. FOREST SERVICE, SURFACE ENVIRONMENT AND MINING
145 GRAND AVE. / BILLINGS, MT 59102
SECONDARY SPONSORS:
U.S. FOREST SERVICE, INTERMTN. FOREST & RANGE EXP. STATION
PRIMARY FUNDING AMOUNT:
4,000
SECONDARY FUNDING AMOUNTS:
10,000
TIME FRAME:
JULY 1, 1974 TO 1975
LOCATION:
MT AK
ABSTRACT:

THE BIOASSAY WORK UNDER CONTROLLED CONDITIONS (C-1F2-L1C, A-3C3L1D) HAS IDENTIFIED A NUMBER OF PLANT SPECIES AT LEAST PARTIALLY CAPABLE OF GROWING IN ALPINE MINE SPOILS. SOME OF THESE, SUCH AS DESCHAMPSIA CAESPITOSA, POA ALPINA, PHLEUM ALPINUM, INSETUM SPICATUM AND CAREX SPP ARE BEING FIELD TESTED ON ACTUAL SITE CONDITIONS. PLANTS OF THESE SPECIES WERE PLANTED OUT BOTH BY SEED AND AS TRANSPLANTS. AFTER TWO YEARS OF LIMITED FIELD TESTS ALL TRANSPLANTS ARE GROWING, BUT SEEDED PLANTS HAVE EXPERIENCED MORE MORTALITY. IN ALASKA ON DISTURBED ARCTIC TUNDRA AND ALPINE TUNDRA, PLANTS FROM THE BEARTOOTH PLATEAU IN MONTANA WERE TRANSPLANTED OUT IN 1976. NO RESULTS ARE YET AVAILABLE. RECIPROCAL TRANSPLANTING BETWEEN ALASKA AND MONTANA WILL BE BEGUN IN 1976, COORDINATED WITH THE ALASKA AGRICULTURE EXPERIMENT STATION. (SEAM)

REPORTS AND PUBLICATIONS:
INTERMOUNTAIN RESEARCH NOTE 206.
AVAILABLE FROM INTERMOUNTAIN STATION, LOGAN, UTAH

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00000700
PROJECT TITLE:
WILDLIFE AND WILDLIFE HABITAT SURVEY - GLASGOW
PROJECT NUMBER:
128-85-A
INVESTIGATORS:
ROBERT E. CARROLL
RESEARCH INSTITUTION:
ECOLOGICAL CONSULTING SERVICE
AIRPORT WAY WEST / 1300 BLOCK CEDAR ST. / HELENA, MT 59601
PRIMARY SPONSOR:
FEDERAL BENTONITE CO.
RONALD ELIASON / BELLE FOURCHE, SD 57717
PRIMARY FUNDING AMOUNT:
PROPRIETARY
TIME FRAME:
JAN. 6, 1976 TO DEC. 31, 1976
LOCATION:
MT - VALLEY CO.
ABSTRACT:

WILDLIFE AND VEGETATION BASELINE OVER FOUR SEASONS ON A 22-SQUARE MILE AREA NEAR GLASGOW, MONTANA.

REPORTS AND PUBLICATIONS:
REPORT WILL BE FILED WITH MONTANA DEPT. OF STATE LANDS.

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00000701
PROJECT TITLE:
WILDLIFE AND WILDLIFE HABITAT SURVEY - MALTA, MONTANA
PROJECT NUMBER:
147-85-A
INVESTIGATORS:
ROBERT E. CARROLL
RESEARCH INSTITUTION:
ECOLOGICAL CONSULTING SERVICE
AIRPORT WAY BLDG. WEST / 1300 BLOCK CEDAR ST. / HELENA, MT 59601
PRIMARY SPONSOR:
AMERICAN COLLOID CO.
ROBERT BAKER / P. O. BOX 815 / BELLE FOURCHE, SD 57717
PRIMARY FUNDING AMOUNT:
PROPRIETARY
TIME FRAME:
MAR. 1, 1976 TO MAR. 1, 1977
LOCATION:
MT - PHILLIPS CO.; MALTA
ABSTRACT:
WILDLIFE AND VEGETATION BASELINE OF AN 85-SQUARE-MILE AREA SOUTH OF MALTA, MONTANA. FOR BENTONITE MINING AREA.
REPORTS AND PUBLICATIONS:
REPORT WILL BE FILED WITH MONTANA DEPARTMENT OF STATE LANDS.

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00000702
PROJECT TITLE:
GEOPHYSICAL STUDIES OF URANIUM DEPOSITS IN SOUTHERN POWDER RIVER BASIN, WYOMING
PROJECT NUMBER:
8556
INVESTIGATORS:
SCOTT SMITHSON
RESEARCH INSTITUTION:
UNIV. OF WYOMING, DEPT. OF GEOLOGY
LARAMIE, WY 82071
PRIMARY SPONSOR:
U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIV.
DENVER FEDERAL CENTER / DENVER, CO 80225
PRIMARY FUNDING AMOUNT:
65,000
TIME FRAME:
OCT. 1, 1974 TO SEPT. 1, 1976
LOCATION:
WY - SOUTHERN POWDER RIVER BASIN
ABSTRACT:
PURPOSE: TO CONTINUE GEOPHYSICAL STUDIES (GRAVITY, MAGNETIC AND SEISMIC) OF URANIUM DEPOSITS IN THE SOUTHERN POWDER RIVER BASIN, WYOMING. THE TWO GENERAL APPROACHES ARE: 1. TO LOCATE URANIUM ´ROLLS´ DIRECTLY BY THE GEOPHYSICAL SIGNATURE, AND 2. TO LOCATE STRUCTURE OR STRATIGRAPHY WITH WHICH ROLLS ARE ASSOCIATED.

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00000703
PROJECT TITLE:
EFFECTS OF TRONA FALLOUT ON RENEWABLE RESOURCES OF SOUTHWEST WYOMING
PROJECT NUMBER:
8157
INVESTIGATORS:
MORTON MAY
RESEARCH INSTITUTION:
UNIV. OF WYOMING, PLANT SCIENCE DIV.
LARAMIE, WY 82071
PRIMARY SPONSOR:
U.S. BUREAU OF LAND MANAGEMENT / WYOMING GAME & FISH COMMISSION / STAUFFER CHEMICAL CORP. / ALLIED CHEMICAL CORP. FMC CORP. / TEXAS GULF CORP.
PRIMARY FUNDING AMOUNT:
8994
TIME FRAME:
JULY 1, 1974 TO DEC. 30, 1976
STATUS:
FIELD WORK COMPLETED JUNE 30, 1976.
LOCATION:
WY - GREEN RIVER AREA
ABSTRACT:
PURPOSE: TO DETERMINE THE EFFECTS, IF ANY, OF THE TRONA OR SODA ASH FALLOUT ON THE VEGETATION, WILDLIFE AND SOILS OF THE AREA SURROUNDING THE THREE TRONA MINES IN THE GREEN RIVER AREA OF WYOMING.

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00000704
PROJECT TITLE:
THE NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY
INVESTIGATORS:
CECIL COOK / EUGENE ECCLI
RESEARCH INSTITUTION:
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
BUTTE, MT 59701
PRIMARY SPONSOR:
U.S. DEPT. OF H.E.W., COMMUNITY SERVICES ADMINISTRATION
WASHINGTON, D.C.
PRIMARY FUNDING AMOUNT:
50,085
TIME FRAME:
MAR., 1976 TO JUNE, 1976
LOCATION:
MT
ABSTRACT:

THE NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY IS COMMITTED TO THE GOAL OF ASSISTING LOW INCOME CITIZENS TO DEVELOP AND SUSTAIN A HUMANLY SATISFYING EXISTENCE. THE CENTER WILL CONCENTRATE ON RESEARCH AND DEMONSTRATION PROJECTS AND ASSISTANCE TO LOWER INCOME COMMUNITIES SO THEY CAN DEVELOP RESOURCE EFFICIENT COMPONENTS AND PATTERNS IN THE FOLLOWING GENERAL AREAS: LOW COST, ENERGY EFFICIENT HOUSING; AGRICULTURAL SYSTEMS AND FOOD; GENERAL HEALTH AND NUTRITION; ENERGY CONSERVATION AND DECENTRALIZED ENERGY PRODUCTION SYSTEMS; REGIONAL ECONOMICS AND COMMUNITY DEVELOPMENT. (MEAC)

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00000705
PROJECT TITLE:
KANSAN-NEBRASKA VOLUNTARY AGRICULTURAL ENERGY CONSERVATION PROGRAM
PROJECT NUMBER:
F. E. A. COOPERATIVE AGREEMENT NUMBER CA-04-60563-00
INVESTIGATORS:
LEONARD BASHFORD
RESEARCH INSTITUTION:
UNIV. OF NEBRASKA, DEPT. OF AGRICULTURAL ENGINEERING
EAST CAMPUS / LINCOLN, NE 68503
PRIMARY SPONSOR:
U.S. FEDERAL ENERGY ADMINISTRATION. CONS. & ENV. DIV.
ROBERT C. MARLEY / WASHINGTON, D.C. 20461
SECONDARY SPONSORS:
NEBRASKA STATE ENERGY OFFICE
GEORGE J. DWORAK / STATE CAPITAL / P. O. BOX 94841 /
LINCOLN, NE 68509
PRIMARY FUNDING AMOUNT:
125,000
SECONDARY FUNDING AMOUNTS:
25,000
TIME FRAME:
JAN. 1, 1976 TO JUNE 30, 1977
LOCATION:
NE KS
ABSTRACT:

THE FEDERAL ENERGY ADMINISTRATION HAS ENTERED INTO A COOPERATIVE AGREEMENT WITH THE GOVERNORS OF THE STATES OF NEBRASKA AND KANSAS FOR AN 18 MONTH, $300,000 PROJECT TO DEVELOP A MODEL VOLUNTARY STATE-WIDE ENERGY CONSERVATION PROGRAM FOR FARM PRODUCTION AGRICULTURE. THE GOAL OF THE EXPERIMENT IS TO SIGNIFICANTLY REDUCE THE AMOUNT OF ENERGY USED IN PRODUCTION AGRICULTURE WITHOUT ADVERSELY AFFECTING CROP YIELDS OR CURRENT LEVELS OF PRODUCTION. AN ENERGY USE SURVEY OF FARM AND RANCH OPERATIONS WILL BE MADE AND VARIOUS FARMING METHODS WILL BE TESTED FOR EFFECTIVENESS AND ENERGY CONSUMPTION.

FEA ESTIMATES THAT THE EQUIVALENT OF 300,000 BARRELS OF OIL PER DAY CAN BE SAVED BY 1985 THROUGH VOLUNTARY ENERGY CONSERVATION PROGRAMS ON AMERICAN FARMS. THE SAVINGS WOULD BE MADE THROUGH EFFICIENT ENERGY MANAGEMENT PRACTICES IN SUCH ACTIVITIES AS FIELD OPERATIONS, IRRIGATION, FERTILIZER AND PESTICIDE APPLICATION, CROP DRYING, AND FARM TO MARKET TRANSPORTATION. IT IS THE PURPOSE OF THIS STUDY TO DEVELOP A SUITABLE PROGRAM TO REALIZE THESE POTENTIAL SAVINGS.

TYPE OF STUDY:
PART OF "VOLUNTARY AGRICULTURAL ENERGY CONSERVATION PROGRAM,"
U.S. FEA CONS. & ENV. DIV.
REPORTS AND PUBLICATIONS:
QUARTERLY REPORTS. UNIV. OF NEBRASKA, DEPT. OF AG. ENG.
AVAILABLE FROM: STATE ENERGY OFFICE, STATE CAPITOL, P.O. BOX 94841, LINCOLN, NE 68509.

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00000706
PROJECT TITLE:
RESIDENTIAL ENERGY CONSERVATION PROGRAM: HOME ENERGY SAVER'S PROGRAM
PROJECT NUMBER:
FEA COOPERATIVE AGREEMENT #CA-04-60831-00
INVESTIGATORS:
GEORGE J. DWORAK
RESEARCH INSTITUTION:
NEBRASKA STATE ENERGY OFFICE
P.O. BOX 94841 / LINCOLN, NE 68509
PRIMARY SPONSOR:
U.S. FEDERAL ENERGY ADMINISTRATION. CONS. & ENV. DIV.

SHELLEY LAUNEY / RM 5310 / 12TH & PENNSYLVANIA AVE, NW /
WASHINGTON, D. C. 20461

SECONDARY SPONSORS:
NEBRASKA STATE ENERGY OFFICE

PRIMARY FUNDING AMOUNT:
81,950

SECONDARY FUNDING AMOUNTS:
13,000

TIME FRAME:
JULY 1, 1976 TO DEC. 31. 1976

LOCATION:
NE - 530,000 SINGLE FAMILY HOME OWNERS

ABSTRACT:

NEBRASKA WAS AMONG THE 10 STATES SELECTED BY FEA ON A COMPETITIVE BASIS TO PARTICIPATE IN A CONSERVATION PROGRAM TO TEST DIFFERENT APPROACHES TO ENCOURAGING HOMEOWNERS TO MAKE ENERGY CONSERVATION IMPROVEMENTS.

THE UNIQUENESS OF NEBRASKA'S GEOGRAPHICAL CHARACTERISTICS WAS PARTLY RESPONSIBLE FOR THEIR SELECTION. THE STATE IS ALMOST ENTIRELY RURAL AND COVERS A LARGE AREA. TEMPERATURES IN BOTH WINTER AND SUMMER ARE EXTREME, MAKING ENERGY-EFFICIENT HOMES A NECESSITY. BECAUSE MOST OF THE STATE'S TOWNS HAVE LESS THAN 500 RESIDENTS, NEBRASKA DIVIDED THE STATE INTO 12 WORKSHOP CENTERS TO ASSIST IN IMPLEMENTING THE PROGRAM. SINCE RURAL PEOPLE RESPOND BEST TO PEOPLE AND SITUATIONS THEY ARE MOST FAMILIAR WITH, VOLUNTEER FORCES FROM ALL LOCALITIES WILL BE RECRUITED. LOCAL SCHOOLS WILL BE USED TO HOLD MEETINGS AND WORKSHOPS. NEBRASKA CAN TAKE ADVANTAGE OF AN EXCELLENT EDUCATIONAL TV NETWORK - NETV - TO PUBLICIZE PROGRAM MATERIALS. NEBRASKA INTENDS TO CONDUCT WORKSHOPS THROUGHOUT THE STATE, PRODUCE AND AIR A 30-MINUTE DOCUMENTARY ON NEBRASKA ENERGY SITUATION, HAND-OUT HOW-TO-DO-IT-YOURSELF BOOKLETS AND OPERATE A WATTS HOT-LINE FOR HOME WEATHERIZATION ASSISTANCE DURING OCT. THROUGH DEC. 1976.

TYPE OF STUDY:
PART OF 'HOME ENERGY SAVERS PROGRAM,' U.S. FEA, CONS. & ENV. DIV.

REPORTS AND PUBLICATIONS:
FINAL REPORT ONLY.
COPY REQUESTED FROM STATE ENERGY OFFICE, JANUARY, 1977.

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00000707
PROJECT TITLE:
LAND COVER ANALYSIS OF NORTH DAKOTA
PROJECT NUMBER:
REAP 11-01-1
INVESTIGATORS:
ROBERT H. ROGERS (BENDIX) / R. D. MOWER (UND)
RESEARCH INSTITUTION:
UNIV. OF NORTH DAKOTA, INST. FOR REMOTE SENSING
GRAND FORKS, ND 58202
BENDIX CORP., AEROSPACE SYSTEMS DIV.
ANN ARBOR, MI 48106
PRIMARY SPONSOR:
NORTH DAKOTA REGIONAL ENVIRONMENTAL ASSESSMENT PROGRAM - REAP
DR. JOHN R. REID / STATE CAPITOL BLDG / BISMARCK, ND 58505
PRIMARY FUNDING AMOUNT:
137,638
TIME FRAME:
MAY 10, 1976 TO OCT. 25, 1976
LOCATION:
ND
ABSTRACT:

A LAND COVER ANALYSIS USING COMPUTERIZED INTERPRETATION OF LANDSAT DATA OF NORTH DAKOTA WILL BE PERFORMED IN A 5 1/2 MONTH PERIOD. THE USGS LEVEL I LAND USE CLASSES FOR REMOTE SENSING, MODIFIED TO SEPARATE URBAN AND SUBURBAN, IS PROPOSED APPROXIMATELY ONE-HALF OF THE LEVEL II CATEGORIES WILL ALSO BE DETERMINED. DELIVERABLE PRODUCTS ARE 1:125,000 COUNTY MAPS (53) AND A 40-ACRE CELL DIGITAL DATA BASE INDEXED AND FILED BY TOWNSHIP AND RANGE. THE COUNTY MAPS WILL BE COLOR-CODED THEMATIC DATA AT FULL LANDSAT RESOLUTION, GEOMETRICALLY CORRECTED, AND PHOTOGRAPHICALLY OVERLAID ON 1:125,000 BASE MAPS. THE 40-ACRE CELLS FOR THE DIGITAL DATA BASE WILL BE GENERATED BY DIGITAL AGGREGATION FROM THE LANDSAT 1.1-ACRE CELLS. A CODING SCHEME FOR EACH CELL WILL BE USED THAT WILL CARRY ADDITIONAL INFORMATION BEYOND PREDOMINANT LAND USE. DATA PROCESSING, INTERPRETATION, AND MAP GENERATION WILL BE PERFORMED BY BENDIX. GROUND TRUTH COLLECTION AND INTERPRETATION ACCURACY FIELD CHECKS WILL BE PERFORMED BY THE INSTITUTE FOR REMOTE SENSING, UNIV. OF NORTH DAKOTA.

* * * * *

00000708
PROJECT TITLE:
EVALUATE THE PROCESS AND CONSTRAINTS OF FEDERAL LAND USE PLANNING IN ENERGY IMPACTED AREAS
INVESTIGATORS:
STEPHEN JAMES
RESEARCH INSTITUTION:
WOODWARD-CLYDE ASSOCIATES
SAN FRANCISCO, CA
PRIMARY SPONSOR:
U.S. EPA, OFFICE OF ENERGY ACTIVITIES
1860 LINCOLN / DENVER, CO 80203
TIME FRAME:
JAN., 1976 TO OCT., 1976
ABSTRACT:

1. A REVIEW OF THE LAND-USE PLAN DEVELOPED BY THE BUREAU OF LAND MANAGEMENT AND THE FOREST SERVICE, IN COOPERATION WITH THE STATE OF MONTANA, FOR THE DECKER-BIRNEY PLANNING UNIT; 2. EVALUATION AND DOCUMENTATION OF THE DEGREE OF COMPATIBILITY AND CONSISTENCY OF LAND-USE GUIDELINES WITH FEDERAL/STATE ENVIRONMENTAL LEGISLATION AND REGULATIONS; 3. ANALYSIS OF THE MULTI-JURISDICTIONAL SITUATION AND CONSTRAINTS; 4. DOCUMENTATION OF THE PROCESS OF GUIDELINE IMPLEMENTATION; 5. IDENTIFICATION OF THE MECHANISMS AVAILABLE TO ENFORCE GUIDELINES IMPLEMENTATION POLICIES TO ENSURE THE MAINTENANCE OR ENHANCEMENT OF ENVIRONMENTAL QUALITY; 6. WHERE AND IF NECESSARY, DEVELOPMENT OF RECOMMENDATIONS TO IMPROVE THE GUIDELINES AND IMPLEMENTATION POLICIES TO INSURE THE MAINTENANCE OR ENHANCEMENT OF ENVIRONMENTAL QUALITY; 7. RECOMMENDATION OF A SYSTEM TO MONITOR THE ENVIRONMENTAL IMPACTS INCLUDING SOCIO-ECONOMIC ASPECTS OF PLAN IMPLEMENTATION. (MEAC)

* * * * *

00000709
PROJECT TITLE:
COLOR INFRARED PHOTO INTERPRETATION - PLATTE RIVER, NEBRASKA
PROJECT NUMBER:
156-88-B
INVESTIGATORS:
ROBERT E. CARROLL
RESEARCH INSTITUTION:
ECOLOGICAL CONSULTING SERVICE
AIRPORT WAY BLDG. WEST / 1300 BLOCK CEDAR ST. / HELENA, MT
PRIMARY SPONSOR.
U.S. FISH & WILDLIFE SERV., WELUT
DENNIS PARKER / RM 206, FEDERAL BLDG. / FT. COLLINS, CO
PRIMARY FUNDING AMOUNT:
3,700
TIME FRAME:
OCT. 1, 1976 TO OCT. 31, 1976
LOCATION:
NE - PLATTE RIVER
ABSTRACT:

PROJECT INVOLVES INTERPRETATION OF 200 LINEAL MILES OF THE PLATTE RIVER IN NEBRASKA AND DELINEATION OF VARIOUS HABITAT TYPES.

7.0 LAND USE

*****

00000710
PROJECT TITLE:
POWDER RIVER BASIN MAPPING PROJECT
PROJECT NUMBER:
6584
INVESTIGATORS:
RONALD W. MARKS
RESEARCH INSTITUTION:
UNIV. OF WYOMING, DEPT. OF GEOLOGY
LARAMIE, WY 82071
PRIMARY SPONSOR:
WYOMING DEPT. OF ECONOMIC PLANNING & DEVELOPMENT
720 WEST 18TH ST. / CHEYENNE, WY 82001
PRIMARY FUNDING AMOUNT:
14,543
TIME FRAME:
APR. 1, 1976 TO JUNE 30, 1976
LOCATION:
WY - POWDER RIVER BASIN
ABSTRACT:
SUPPLEMENTAL GRANT TO HELP DEVELOP COUNTY RESOURCE MAPS TO IDENTIFY, MAP AND VERIFY LAND USES. LAND FORMS. AND VEGETATION TYPES FOR USE AS BASELINE REFERENCE DATA FOR GUIDING DEVELOPMENT IN THE POWDER RIVER BASIN.

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00000711
PROJECT TITLE:
ENERGY-ENVIRONMENT INFORMATION TRANSFER SYSTEM, PHASE I
INVESTIGATORS:
C.C. GORDON / GAIL KUNTZ / DALE HORTON
RESEARCH INSTITUTION:
UNIV. OF MONTANA, ENVIRONMENTAL STUDIES PROGRAM
MISSOULA, MT 59801
PRIMARY SPONSOR:
U.S. EPA, REGION VIII
1860 LINCOLN ST. / DENVER, CO 80203
PRIMARY FUNDING AMOUNT:
4,966
TIME FRAME:
JULY 1, 1976 TO AUG. 30, 1976
LOCATION:
MT
ABSTRACT:

THE OBJECTIVE OF THE SYSTEM IS TO PROVIDE FOR IMPROVED TRANSFER OF ENERGY-ENVIRONMENT INFORMATION TO DECISION MAKERS IN THE GOVERNMENTAL (STATE, LOCAL AND TRIBAL) AND PRIVATE SECTORS.

THE PROJECT WILL BE PERFORMED IN TWO PHASES. PHASE I WILL DETERMINE THE INFORMATION SYSTEM REQUIREMENTS. THIS WILL CONSIST OF 1)IDENTIFYING THE USERS, 2)DETERMINING USER NEEDS, AND 3)DEFINING OUTPUTS OF THE SYSTEM.

PHASE II, WHICH WILL NOT BE FUNDED UNTIL 9/76, WILL INVOLVE THE ACTUAL DESIGN OF AN INFORMATION TRANSFER SYSTEM AND A PLAN TO IMPLEMENT THE SYSTEM. (MEAC)

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00000712
PROJECT TITLE:
WESTERN ENERGY EXPANSION STUDY
INVESTIGATORS:
JIM DAVIES
RESEARCH INSTITUTION:
U.S. BUREAU OF RECLAMATION
P.O. BOX 2553 / BILLINGS, MT 59103
PRIMARY SPONSOR:
U.S. BUREAU OF RECLAMATION
ROBERT L. MCPHAIL, REGIONAL DIRECTOR / BILLINGS, MT 59103
PRIMARY FUNDING AMOUNT:
290,000
TIME FRAME:
FEB., 1976 TO MAY, 1977
LOCATION:
MT
ABSTRACT:

THIS STUDY WILL INVENTORY AND COMPARE OPPORTUNITIES TO INCREASE ENERGY CAPACITY AND GENERATION THROUGH WATER MANAGEMENT AND DEVELOPMENT. THE FOLLOWING PURPOSES WILL BE EXPLORED: 1. USE OF FEDERAL PROJECT WATER FOR COOLING THERMAL POWERPLANTS; 2. REVISION OF WATER AND POWER OPERATIONS AT EXISTING FACILITIES TO MINIMIZE POWER NEEDS FOR PUMPING OR TO MAXIMIZE POWER GENERATION, INCLUDING THE PURCHASE OF POWER TO MEET FEDERAL PUMPING REQUIREMENTS, THUS FREEING FEDERAL HYDROPOWER FOR PEAKING PURPOSES; 3. ENERGY CONSERVATION MEASURES BY FEDERAL POWER USERS; 4. CONSIDERATION OF STRUCTURAL MODIFICATIONS AND ADDITIONS AT EXISTING POWER FACILITIES; 5. IDENTIFICATION OF NEW HYDRO AND PUMPED STORAGE SITES; 6. APPRAISAL OF SECONDARY USES OF THERMAL COOLING PRODUCT WATER SUCH AS WARM-WATER IRRIGATION; 7. USE OF WASTE WATER FOR THERMAL COOLING; 8. PRIOR UTILIZATION OF KNOWN HYDROPOWER GENERATING POTENTIALS FOR POSSIBLE UPDATED FEASIBILITY STUDY AUTHORIZATIONS; 9. IMPROVEMENT OF POWER TRANSMISSION THROUGH CONSOLIDATION OF LINES, EXPLORATION OF JOINT VENTURES WITH PRIVATE INDUSTRY, AND IMPACTS OF NEW TECHNOLOGY ON ENTITIES AND 10. CONSIDERATION OF INTEGRATING "EXOTIC" FORMS OF ENERGY SUCH AS MINERAL ENERGY, GEOTHERMAL, SOLAR, AND WIND AND HYDROPOWER GENERATION FOR USE IN AND AROUND MAJOR WESTERN LOAD CENTERS. THE STUDY WILL BE AN INTERREGIONAL COORDINATED EFFORT TO COMPARE POTENTIAL ENERGY DEVELOPMENT PROJECTS.

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00000713
PROJECT TITLE:
INTERRELATIONSHIPS OF ENERGY AND AGRICULTURE
INVESTIGATORS:
JOSEPH STINCHFIELD
RESEARCH INSTITUTION:
UPPER MIDWEST COUNCIL
FEDERAL RESERVE BANK BLDG. / MINNEAPOLIS, MN 55480
PRIMARY SPONSOR:
UPPER MIDWEST COUNCIL
TIME FRAME:
FEB. 1, 1976 TO NOV. 1, 1976
LOCATION:
MT ND SD MI WI MN
ABSTRACT:

PRELIMINARY RESEARCH BY THE UPPER MIDWEST COUNCIL AND OTHERS INDICATES THE POSSIBILITY OF SHORTAGES IN CERTAIN ENERGY SUPPLIES ESSENTIAL TO THE PRODUCTION, MARKETING, AND/OR PROCESSING OF AGRICULTURAL PRODUCTS. THE COUNCIL HAS THEREFORE DECIDED TO UNDERTAKE AN OVERVIEW STUDY OF THE VARIOUS INTERRELATIONSHIPS BETWEEN ENERGY AND AGRICULTURE. (MEAC)

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00000714
PROJECT TITLE:
MANAGING OUR ENERGY FUTURE: AN UPDATE
INVESTIGATORS:
MICHAEL J. MURPHY
RESEARCH INSTITUTION:
UPPER MIDWEST COUNCIL
FEDERAL RESERVE BANK BLDG. / MINNEAPOLIS, MN 55480
PRIMARY SPONSOR:
UPPER MIDWEST COUNCIL
TIME FRAME:
JULY 1, 1976 TO JAN. 31, 1977
LOCATION:
MT ND SD WI MI MN
ABSTRACT:

THIS STUDY WILL LOOK AT ENERGY POLICY, SUPPLY AND DEMAND OF OF ELECTRICITY, NUCLEAR POWER, OIL AND GAS RESERVES, COAL GASIFICATION, ALTERNATIVE SOURCES OF ENERGY AND ENERGY CONSERVATION. A SUMMARY OF THE TECHNOLOGICAL STATUS OF ENERGY DEVELOPMENT WILL ALSO BE CONDUCTED. SCENARIOS BASED ON DIFFERENT ENERGY POLICY DECISIONS WILL BE GENERATED TO PREDICT THE EFFECTS OF SUCH DECISIONS ON THE REGION. THE UPPER MIDWEST REGION INCLUDES PARTS OF MINNESOTA, WISCONSIN, UPPER PENINSULA OF MICHIGAN, NORTH AND SOUTH DAKOTA AND MONTANA. THIS IS AN UPDATE AND REASSESSMENT OF ENERGY POLICY TRENDS AND DECISIONS DURING THE PAST TWO YEARS AND THEIR IMPLICATIONS FOR THE UPPER MIDWEST. (MEAC)

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00000715
PROJECT TITLE:
REVIEW REPORT: MISSOURI RIVER - NORTH DAKOTA, SOUTH DAKOTA, NEBRASKA AND MONTANA
INVESTIGATORS:
CHRIS GARVEY
RESEARCH INSTITUTION:
U.S. CORPS OF ENGINEERS, MISSOURI RIVER DIV.
U.S. POST OFFICE AND COURTHOUSE / OMAHA, NE 68101
PRIMARY SPONSOR:
U.S. CORPS OF ENGINEERS
PRIMARY FUNDING AMOUNT:
1,468,000
TIME FRAME:
JULY, 1972 TO FEB., 1977
LOCATION:
ND SD MT WY
ABSTRACT:

THIS STUDY IN THE UPPER MISSOURI RIVER BASIN DEALS WITH OVERALL WATER RESOURCES PROBLEMS AND THE OPPORTUNITIES FOR INCLUDING HYDRO ELECTRIC POWER GENERATION AT EXISTING FACILITIES. ADDITIONAL UNITS MAY BE POSSIBLE THAT WOULD INCREASE CAPACITIES AT THREE OF THE SIX EXISTING PROJECTS ON THE UPPER MISSOURI RIVER. THIS STUDY IS EVALUATING THE OPTIMUM SIZE OF ADDITIONAL UNITS. THE ECONOMIC FEASIBILITY AND THE ENVIRONMENTAL AND SOCIAL IMPACTS. THE MISSOURI RIVER DIVISION WILL PUBLISH A REPORT ON THE FEASIBILITY OF INCREASING THE SIZE OF EXISTING UNITS AT THE FORT PECK, MONTANA, PROJECT AND OTHER EXISTING DAMS IN THE MAIN STEM SYSTEM, ADDITION OF NEW DAM SITES BETWEEN FORT PECK DAM AND LAKE SAKAKAWEA, AND DEVELOPMENT OF PUMP-STORAGE POWER PLANTS BETWEEN CERTAIN UPLAND AND MAIN STEM LAKES.

REPORTS AND PUBLICATIONS:
REVIEW REPORT ACCOMPANIED BY EIS DUE FEBRUARY, 1977.

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00000716
PROJECT TITLE:
ADAPTATIONAL DEVELOPMENT AND PROTOTYPE IMPLEMENTATION OF AN OPERATIONALLY-ORIENTED, COMPUTERIZED, MAP-BASED DATA STORAGE AND ANALYSIS SYTEM FOR FISH AND WILDLIFE RESOURCE MANAGEMENT USE
INVESTIGATORS:
DOUGLAS MUTTER / GEORGE NEZ / LARRY SALMEN
RESEARCH INSTITUTION:
FEDERATION OF ROCKY MOUNTAIN STATES
2480 WEST 26TH AVENUE, SUITE 300B / DENVER, CO 80211
PRIMARY SPONSOR:
U.S. FISH & WILDLIFE SERV., WELUT
DR. KENNETH P. BURNHAM / RM. 206, FEDERAL BLDG. /
FT. COLLINS, CO 80251
PRIMARY FUNDING AMOUNT:
353,539
TIME FRAME:
OCT. 1, 1976 TO OCT. 1, 1978
LOCATION:
MT WY CO
ABSTRACT:

OBJECTIVES: THIS PROJECT WILL MODIFY AND IMPLEMENT, FOR FWS OPERATIONAL USE, A COMPUTER-BASED SYSTEM FOR STORING, MANIPULATING, ANALYZING, AND DISPLAYING THE ARRAY OF MAP-BASED INFORMATION BEING COMPILED IN OTHER WELUT PROJECTS. IT WILL ALLOW FOR THE RAPID TRANSFER OF A COMMON FWS DATA BASE FOR USE BY A MULTIPLICITY OF USES AND USERS. DURING SYSTEM DEVELOPMENT THERE WILL BE CONTINUING AND SIGNIFICANT INPUTS TO THE PROJECT BY FWS REGION 6 AND THE SYSTEM WILL BE TESTED IN THE MONTANA-WYOMING AREA OFFICE. PRODUCTS WILL INCLUDE COMPUTER READABLE FILES CONTAINING DIGITAL AND MAP-BASED DATA.

VARIOUS ANALYTICAL AND DISPLAY ROUTINES. A TECHNICAL MANUAL TO DOCUMENT THE SYSTEM AND A COMPREHENSIVE TRAINING MANUAL. TRAINING CLASSES AND SESSIONS ON USE OF THE SYSTEM WILL BE CONDUCTED FOR REGION 6 PERSONNEL. APPROACH: PROTOTYPE IMPLEMENTATION AS A JOINT PROJECT OF THE WESTERN ENERGY AND LAND USE TEAM, FWS MONTANA-WYOMING AREA OFFICE, AND THE HABITAT ASSESSMENT GROUP.

LOCATION INDEX

AK

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AZ

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CA

00000572

CO

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MO

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ND

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*GX SIGNIFIES PROJECTS OF GENERAL APPLICABILITY NOT GEOGRAPHICALLY BOUND TO A STATE

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NE
          00000627  00000705  00000706  00000709

NM
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          00000642  00000669

NV
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OK
          00000642

OR
          00000572

SD
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          00000679  00000683  00000713  00000714  00000715

TX
          00000637

UT
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          00000615  00000629  00000630  00000636  00000639  00000640  00000642  00000697  00000698

WA
          00000572

WI
          00000713  00000714

WY
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          00000669  00000671  00000679  00000682  00000688  00000702  00000703  00000710  00000715  00000716
```

PERSONAL NAME INDEX

ADAMS, R. P.
00000570

ANDERSON, E.
00000633

ANDREWS, R.
00000648

ASAY, K.
00000550

AYERS, D.
00000559

BAKER, R.
00000701

BALDWIN, A. G.
00000589

BARD, L.
00000601

BARTH, R. C.
00000564

BASHFORD, L.
00000705

BECKNER, J. L.
00000608

BICKEL, D.
00000592

BLACKBURN, K. A.
00000610 00000611 00000612 00000627

BLEUMLE, J.
00000575

BODY, D. E.
00000602

BOX, T.
00000694 00000695

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BRANISH, F. 00000630

BRELSFORD, D. L. 00000656 00000657 00000659 00000660

BROMENSHENK, J. 00000605

BROWNE, T. D. 00000649

BROWN, R. W. 00000554 00000692 00000693 00000694 00000695 00000696 00000697 00000698 00000699

BURNHAM, K. P. 00000628 00000716

BURROUGHS, E. 00000616 00000671

BURTCH, F. W. 00000680

CAIL, T. 00000606

CAPRIO, J. M. 00000548

CAREY, L. 00000561

CARLSON, C. G. 00000575

CARPENTER, H. C. 00000682

CARROLL, R. E. 00000607 00000608 00000660 00000677 00000678 00000700 00000701 00000709

CAZALET, E. 00000639

CHALMERS, J. A. 00000633

CHANG, B. 00000682

CHERRY, J. 00000585

CHIN, P. S. 00000687

CHONG, K. P. 00000682

CLANCEY, C. 00000626

COAN, C. 00000650

COFFIN, D. L. 00000581

COLBO, K. L. 00000544

COLLINS, B. 00000659

COOK, C. 00000704

COX, J. 00000650

CRAVENS, J. 00000692

CROCKER, T. 00000629

CULBERTSON, J. L. 00000558 00000683

CURRY, R. R. 00000576

CVANCARA, A. M. 00000593

DAVIES, J. 00000712

DAVIS, B. L. 00000627

DAVIS, L. L. 00000676

DEL FUCCO, A. 00000635

DELK, F. 00000558 00000559 00000578

DEPUIT, E. J. 00000547

DEWEY, D. 00000550

DICKSON, E. M. 00000669

DITTBERNER, P. L. 00000567 00000569 00000570 00000571

DONALD, D. W. 00000649

DUEKER, J. 00000665

DUNAWAY, JR., W. C. 00000643

DUPREE, H. K. 00000560 00000561 00000562

DWORAK, G. J. 00000705 00000706

D'ARGE, R. C. 00000630 00000641

ERRATA SHEET
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00000017

SOIL WATER
00000417

SOLAR COLLECTORS
00000516 00000521

SOLAR ENERGY
00000250 00000255 00000273 00000515 00000516 00000520 00000527

SOLID WASTE DISPOSAL
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SOLID WASTES
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SOLVENT EXTRACTION
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SPAWNING HABITATS
00000157

SPINK CO., SD
00000383

SPOIL BANKS
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SPOILS CHARACTERISTICS
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00000269 00000326

SPOILS TREATMENTS
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STABILIZATION
00000034 00000035 00000072 00000259 00000261 00000262 00000269 00000286 00000308 00000311 00000317

DAVIES

DAVIS,

DAVIS,

DEL FU

DELK,

DEPUIT

DEWEY,

DICKSO

DITTEE

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DUNAWA

DUPREE

DWORA

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FIELD, R. 00000601

FINCH, T. E. 00000670

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FRISCHKNECHT, N. 00000549

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GALITZ, D. S. 00000624

GALLAGHER, J. 00000658

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GUNN, F. 00000663

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HADLEY, R. 00000558 00000560 00000561 00000562

HAMMER, M. L.
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HOWARD, P. 00000694 00000695

HOWELL, F. 00000689

HOYT, P. M. 00000642

HUNT, W. A. 00000616

HURTUBISE, R. J. 00000665

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JAMES, S. 00000708

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JOHNSON, G. 00000541

JOHNSTON, R. S. 00000692

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00000595

KARAM, P. J.
00000618

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00000689

KAUFFMAN, K. O.
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KELLY, J.
00000640

KELLY, W. J.
00000618

KERR, R. D.
00000621

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00000629 00000630

KISSNER, A.
00000653 00000654 00000655 00000656 00000657 00000658

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00000683

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00000613

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00000574 00000588

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KUNTZ, G.
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LA GRONE, F. S.
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LA MOURE, B.
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LANDIS, E.
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LANCE, I.
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LAUNEY, S.
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